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9. Impact Level

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4D	Percent difference
₹D	
AA	Atomic absorption
BFB	Bromofluorobenzene
BNA	Base/neutral and acid (equivalent to semivolatiles)
CCB	Continuing calibration blank
CCV	Continuing calibration verification
CLP	Contract Laboratory Program
CRA	CRDL standard for AA
CRDL	Contract required detection limit
CRI	CRDL standard for ICP
CRII	CRDL standard for ICP initial
CRIF	CRDL standard for ICP final
CRQL	Contract required quantitation limit
DBC	Dibutylchlorendate
DFTPP	Decafluorotriphenylphosphine
DQO	Data quality objectives
EPA	U.S. Environmental Protection Agency
GC/MS	Gas chromatography/mass spectrometry
GC [']	Gas chromatography
GFAA	Graphite furnace atomic absorption
GPC	Gel permeation chromatography
ICB	Initial Calibration Blank
ICP	Inductively coupled plasma emission spectrometry
ICS	ICP interference check sample
ICV	Initial calibration verification
IDL	Instrument detection limit
LCS	Laboratory control sample
LCSS	Laboratory control sample soil
LCSW	Laboratory control sample water
MSA	Method of standard addition
MS/MSD	Matrix spike/matrix spike duplicate
NV	Not Validated
PBW	Preparation blank water
PCB	Polychlorinated biphenyl
PEM	Performance evaluation mixture
QA	Quality assurance
QC .	Quality control
RDL	Required Detection Limit
RF	Response factor
RIC	Reconstructed ion chromatogram
RPD	Relative percent difference
RRF	Relative response factor
RRT	Relative retention time
RSD	Relative standard deviation
RT	Retention time
SDG	Sample delivery group
SOW	Statement of work

ACRONYMS (Cont'd.)

TAL	Target analyte list
TCL	Target compound list
TIC	Tentatively identified compounds
TOC	Total organic carbon
TOX	Total organic halides
V	Validated
VOC	Volatile organic compounds

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1.0 INTRODUCTION

The following samples were obtained from the 100-FR-3 Operable Unit Fourth Quarter 1993 Groundwater Sampling event:

B09D66	B09D90	B09DC0	B09DF0	B09DH0
B09D67	B09D91	B09DC1	B09DF1	B09DH1
B09D68	B09D92	B09DC2	B09DF2	B09DH2
B09D69	B09D93	B09DC3	B09DF3	B09DH4
B09D70	B09D94	B09DC4	B09DF4	B09DH5
B09D71	B09D95	B09DC5	B09DF5	B09DH6
B09D72	B09D96	B09DC6	B09DF6	BO9DH7
B09D73	B09D97	B09DC7	BO9DF7	B09DH8
B09D78	B09D98	B09DC8	B09DF8	B09DH9
B09D79	B09D99	B09DC9	B09DF9	B09DJ0
B09D80	B09DB0	B09DD0	B09DG0	B09DJ1
B09D81	B09DB1	B09DD1	B09DG1	B09DJ2
B09D82	B09DB2	B09DD2	B09DG2	B09DJ3
B09D83	B09DB3	B09DD3	B09DG3	B09DJ4
B09D84	B09DB4	B09DD4	B09DG4	B09DJ5
B09D85	B09DB5	B09DD5	B09DG5	B09DJ6
B09D86	BO9DB6	B09DD6	B09DG6	B09DJ7
B09D87	B09DB7	B09DD7	B09DG7	
B09D88	B09DB8	B09DD8	B09DG8	
B09D89	B09DB9	B09DD9	B09DG9	

Westinghouse-Hanford has requested that a minimum of 20% of the total number of Sample Delivery Groups be validated for the 100-FR-3 Operable Unit Fourth Quarter 1993 Sampling Investigation. Therefore, the data from the chemical analysis of fifty-two samples from this sampling event and their related quality assurance samples were reviewed and validated to verify that reported sample results were of sufficient quality to support decisions regarding remedial actions performed at this site. The samples were analyzed by Thermo-Analytic Laboratories (TMA) and Roy F. Weston Laboratories (WESTON) using U.S. Environmental Protection Agency (EPA) CLP protocols. All hydrazine analyses were performed by DataChem Laboratories (DataChem).

Sample analyses included:

- Volatile organics
- Semivolatile organics
- Pesticide/PCB organics
- Inorganics
- General chemical parameters.

The table below lists the Sample Delivery Groups (SDGs) that were validated for this sampling event. The validated data and the non-validated results for the remaining samples are included in this report.

SDG No.	Matrix	No. of Samples Validated	Parameters
B09D69	W	20	Wet Chem
B09D70	W	5	voc
B09D70	W	2	BNA, Pest/PCB, Inorganic, Wet Chem
B09D71	W	2	Inorganic
B09D78	W	1.	voc
B09D82	W	4	VOC, Inorganic
B09D82	W	2	BNA, Pest/PCB, Wet Chem
B09D83	W	2	Inorganic
B09DB5	W	. 3	Wet Chem
B09DB6	W	4	voc
BO9DB6	W	2	BNA, Pest/PCB, Inorganic, Wet Chem
B09DB7	W	2	Inorganic
В09ДНО	W	2	VOC, Inorganic
воэрно	W	1	BNA, Pest/PCB, Wet Chem
B09DH4	W	2	VOC, Inorganic
B09DH4	W	1	BNA, Pest/PCB, Wet Chem
B09DJ2	W	2	VOC, Inorganic
B09DJ2	W	1	BNA, Pest/PCB, Wet Chem
B09DJ3	W	1	Inorganic

Twenty-four samples were validated for radiochemical parameters by TMA and Teledyne. Analytical protocols specified in the Westinghouse Hanford Company Statement of Work for Nonradioactive Inorganic/Organic and Radiochemical Analytical Services were used. Sample analyses included the following:

- Gross alpha and gross beta determination
- Alpha spectroscopy

(1) (1)

- Gamma spectroscopy
- Strontium-90
- Technetium-99
- Carbon-14
- Tritium.

SDG No.	Matrix	No. of Samples Analyzed	Parameters
B09D66	W	17	Radiochemistry
B09D78	W	5	Radiochemistry
B09DH0	W	1	Radiochemistry
BO9DH4	W	1	Radiochemistry

The radiochemical data summary tables can be found following Section 13.8.

Data quality was reviewed and analytical results validated using Westinghouse-Hanford procedures and related EPA CLP protocols and guidelines. Data were qualified based upon their quality and the guidance provided by these sources. In instances where the two protocols differed, the Westinghouse-Hanford quidance was followed.

Two sets of split samples were submitted to TMA and Roy F. Weston Laboratories as shown below:

Set 1:

Sample No.	Split Sample No.	Well Location
B09D82	B09DH0	199-F5-6
B09D83	B09DH1	199-F5-6
B09D84	B09D62	199 - F5-6
Set 2:		
Sample No.	Split Sample No.	Well Location
B09DB6	B09DH4	199-F5-47
B09DB7	BO9DH5	199-F5-47
B09DB8	B09DH6	199-F5-47
B09DB9	BO9DH7	199-F5-47

The sample and split samples for both well locations were included in the validated data. The results were compared using the sample guidelines for determining the RPD between a sample and its duplicate. All results for both well locations were

within QC limits and appear in the summary tables within this report.

Two sets of field duplicate samples were submitted to TMA as shown below.

Set 1:

Sample No.	<u>Duplicate Sample No.</u>	Well Location
B09D82	B09DG2	199-F5-6
B09D83	B09DG3	199-F5-6
B09D84	B09DG4	199-F5-6
B09D85	B09DG5	199-F5-6
Set 2:		
Sample No.	Duplicate Sample No.	Well Location
B09DB6	B09DG6	199-F5-47
B09DB7	B09DG7	199-F5-47
B09DB8	B09DG8	199 - F5-47
B09DB9	B09DG9	199-F5-47

The duplicate sample results for both well locations were included in the validated data. The results were compared using the sample guidelines for determining the RPD between a sample and its duplicate. All results for both well locations appear in the summary tables within this report. All results fell within the required QC limits with the following exception:

 The field duplicate RPD results for copper and iron in sample numbers B09D82 and B09DG2 in SDG No. B09D82.

Two sets of equipment blanks were submitted to TMA, Weston and DataChem as shown in the table below. The sets were collected on 10/28/93 and 11/03/93, and designated EB-1 and EB-2, respectively.

Set 1:

Set 2:

Sample Number
B09DJ2
B09DJ3
B09DJ4
B09DJ5

Under EPA protocol, equipment blanks are water samples used to indicate whether or not decontamination procedures were adequate or that contamination was not inherent in the equipment used. The equipment blank information provided was inadequate to determine what contamination, if any, was a result of the

equipment used. Equipment blanks require well number locations and associated sample numbers in order to make such a determination.

The report is broken down into sections for each chemical analysis and radiochemical analysis type. Each section addresses the data package completeness, holding time adherence, instrument calibration and tuning acceptability, blank results, accuracy, precision, system performance, as well as the compound identification and quantitation. In addition, each section has an overall assessment and summary for the data packages reviewed for the particular chemical analyses. Detailed backup information is provided to the reader by SDG No. and sample number. For each data package, a matrix of chemical analyses per sample number is presented, as well as data qualification summaries.

Laboratory and data validation personnel added qualifiers to the reported data based on specified data quality objectives. The data reporting qualifiers are summarized as follows:

- ----U Indicates the analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for dilutions and moisture content. It should be noted that the sample quantitation limit may be higher or lower than the contract or method required detection limit, depending on instrumentation, matrix and concentration factors.
 - J Indicates the analyte was analyzed for and detected. However, the associated value is considered to be an estimate due to identified QC deficiencies. Data flagged with a "J" may be usable for decision making purposes, depending upon the DQOs of the project. Laboratories qualify all reported organic detects below CRQL with a "J" per the CLP procedures.
 - UJ Indicates the analyte was analyzed for and not detected. However, the associated detection limit is considered to be an estimate due to identified QC deficiencies. Detection limits flagged with a "UJ" may be usable for decision making purposes, depending upon the DQOs of the project.
 - JN Indicates the analyte was analyzed for and that there is presumptive evidence of the presence of the compound. The concentration reported is considered an estimate which should be used for informational purposes only.
 - R Indicates the analyte was analyzed for and due to a significant QC deficiency, the data are deemed unusable. Analytic results flagged "R" are invalid and provide no information as to whether or not the analyte is present.

It should be noted that, frequently, results will bear two qualifiers - one given by the laboratory and one given during the validation process. For example, a "U" qualifier is given by the laboratory when the compound has not been detected during the analysis, and a "J" qualifier may be added during the validation to qualify the result due to minor quality problems. Therefore, the resulting qualification is "UJ", where the "U" qualifier has been given by the laboratory and the "J" qualifier given by the validator.

The results of data validation performed for the 100-FR-3 Operable Unit Fourth Quarter 1993 Sampling Investigation are contained in the tables following each of the chapters in this report.

Several general quality trends which resulted in data qualification were observed. These included:

- Minor laboratory blank contamination was noted in the volatile results for a few samples. The contaminants were compounds commonly found in analytical laboratories and the corresponding sample results were flagged accordingly.
- The calibration verification results for several compounds exceeded QC limits for one pesticide/PCB sample. All associated sample results were estimated and flagged "J".
- The metals analysis showed minor matrix spike accuracy problems, laboratory duplicate problems, ICP serial dilution problems and analytical spike recoveries below the QC limit. All associated metals results were flagged accordingly due to these factors.
- Both positive and negative laboratory blank contamination was noted in the inorganics analysis. Associated results were flagged accordingly. Contamination, however, was not sufficiently high to affect the usability of the data.
- Several wet chemistry samples did not meet QC limits for holding times, matrix spike, recovery problems and precision problems. All results were qualified accordingly.
 - Due to precision results outside of QC limits, all gross alpha and gross beta results in one data package and technetium-99 results in another data package were qualified as estimates.
 - Due to continuing calibration problems, gamma spectroscopy results in two data packages were qualified as estimates.
 - Due to an LCS problem, all uranium-235 results and plutonium-238 results in one data package were qualified as estimates and flagged "J".

- Reported MDA values for several alpha spectroscopy, gamma spectroscopy and technetium-99 results were above the RDL.
- Due to lack of checksource data and high radiochemical yields, carbon-14 results in several data packages were qualified as estimates.
- Due to laboratory blank contamination, several technetium-99 results were qualified as estimates and flagged "J".
- Due to the lack of a matrix spike analysis, tritium results in two data packages were qualified as estimates.

In general, the protocol-specific QA/QC requirements were met for the samples analyzed in this investigation with the exceptions noted above and discussed in detail in the chapters to follow. All requested analyses were performed.

With the exceptions noted above, the protocol-specific data quality objectives in terms of precision, accuracy, completeness, representativeness, and comparability have been met.

	WELL AND SAM	IPLE INFORM	MATION		SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	VOLATILES
199-F1-2	B09D66	W	10/29/93	NV	2-5
	B09D68	W	10/29/93	NV	2-5
199-F5-1	B09D70	w	10/28/93	v	2-7
	B09D72	W	10/28/93	V	2-7
	B09DJ6	W	10/28/93	V	2-7
199-F5-4	B09D78	w	11/06/93	NV	2-8
	B09D80	. W .	11/06/93	. NV	2-8
199-F5-6	B09D82	W	10/26/93	V	2-9
133-13-0	B09D84	w	10/26/93	v	2-9
	B09DG2	w	10/26/93	v	2-9
	B09DG4	w	10/26/93	v	2-9
	B09DH0	w	10/26/93	v	2-13
	B09DH2	w	10/26/93	v	2-13
100 FE 40	Poor	377		7777	<u></u>
199-F5-42	B09D86	W	10/30/93	NV	2-5
	B09D88	W	10/30/93	NV	2-5
199-F5-43A	B09D90	W	10/30/93	NV	2-5
	B09D92	- W	10/30/93	NV	2-5
199-F5-44	B09D94	W	10/30/93	NV	2-5
100 10 44	B09D96	w	10/30/93	NV	2-5
199-F5-45	B09D98	W	11/06/93	NV	3.0
137-£3-43	B09D80	w	11/06/93	NV NV	2-8 2-8
	B09DJ7	w	11/06/93	V	2-8
			· · · · · · · · · · · · · · · · · · ·		2-0
199-F5-46	B09DB2	W	11/06/93	NV	2-10
	B09DB4	w	11/06/93	NV	2-10
199-F5-47	B09DB6	w	10/31/93	V	2-11
-	B09DB8	w	10/31/93	V	2-11
	B09DG6	w	10/31/93	v	2-11
	B09DG8	w	10/31/93	v	2-11
	B09DH4	w	10/31/93	v	2-16
	B09DH6	w	10/31/93	v	2-16
199-F5-48	B09DC0	w	10/31/93	NV	2-11
1//-1 J- -1U	B09DC2	w	10/31/93	NV	2-11
400 754	 		· · · · · · · · · · · · · · · · · · ·		
199-F6-1	B09DC4	w	10/30/93	NV	2-5
	B09DC6	W	10/30/93	NV	2-5
199-F7-1	B09DC8	w	10/27/93	NV	2-12
	B09DD0	w	10/27/93	NV	2-12

	WELL AND SAN	MPLE INFORI	MATION		SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	VOLATILES
199-F7-2	B09DD2	w	10/30/93	NV	2-6
	B09DD4	w	10/30/93	NV	2-6
199-F7-3	B09DD6	W	11/06/93	NV	2-10
	B09DD8	W	11/06/93	NV	2-10
199-F8-2	B09DF0	w	10/31/93	NV	2-11
	B09DF2	W	10/31/93	NV	2-11
199-F8-3	B09DF4	W	10/29/93	NV	2-6
	B09DF6	W	10/29/93	NV	2-6
199-F8-4	B09DF8	W	10/29/93	NV	2-6
	B09DG0	W	10/29/93	NV	2-6
EB-1	B09DH8	W	10/28/93	v	2-7
	B09DJ0	W	10/28/93	v	2-7
EB-2	B09DJ2	w	11/03/93	v	2-17
	B09DJ4	w	11/03/93	v	2-17

2.0 VOLATILE ORGANIC DATA VALIDATION

2.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B09D70 B09D82 B09DH0 B09DJ2 B09D78 B09DB6 B09DH4

2.2 HOLDING TIMES

Analytical holding times were assessed to ascertain whether the Westinghouse-Hanford holding time requirements for volatile organic analyses were met by the laboratory. The Westinghouse-Hanford holding time requirements for volatile organic analyses are as follows: soil samples must be analyzed within 14 days of the date of sample collection; aqueous samples must be analyzed within seven days of the date of sample collection (if unpreserved); and all samples must be shipped on ice to the laboratory and stored at 4°C until analysis.

Holding times were met for all samples.

2.3 INSTRUMENT CALIBRATION AND TUNING

Instrument calibration is performed to establish that the GC/MS instrument is capable of producing acceptable and reliable analytical data over a range of concentrations. The initial and continuing calibrations are to be performed according to CLP protocols. An initial multipoint calibration is performed prior to sample analysis to establish the linear range of the GC/MS instrument. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

All initial and continuing calibration results were acceptable.

2.3.1 GC/MS Tuning/Instrument Performance Check

Tuning is performed to ensure that mass resolution, identification, and, to some degree, sensitivity of the GC/MS instrument have been established. When analyzing for volatile organics, instrument tuning is performed with BFB. Instrument tuning must be performed prior to the analysis of either

standards or samples and must meet the criteria for acceptable GC/MS instrument tuning using BFB as outlined in Westinghouse-Hanford (WHC 1992) and in EPA (EPA 1988b and 1991) criteria.

The original data were checked for transcription and calculation errors to verify that tuning criteria were met. Prior to calibration and sample analysis, all tuning criteria were met.

All GC/MS tuning data were acceptable.

2.4 BLANKS

Method blank, field blank and trip blank analyses are performed to determine the extent of laboratory or field contamination of samples. No contaminants should be present in the blanks. Analytical results for analytes present in any sample at less than 5 times the concentration of that analyte found in associated blanks should be qualified as non-detects; common laboratory contaminants present in samples at less than 10 times the concentration of that analyte in the associated blank are qualified as non-detects.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for methylene chloride:

- Sample numbers B09DH0 and B09DH2 in SDG No. B09DH0.
- Sample number B09DJ2 in SDG No. B09DJ2.

Due to the presence of laboratory blank contamination, the following sample was flagged "U" for acetone:

Sample number B09DH2 in SDG No. B09DH0.

All other laboratory blank results were acceptable.

2.5 ACCURACY

Accuracy was assessed by evaluating the recoveries of stable isotopically labeled surrogate compounds added to all samples and blanks, and by the analysis of a representative sample which was spiked with a variety of volatile organic compounds.

2.5.1 Matrix Spike Recovery

Matrix spike compounds are added to a sample which is representative of the sample delivery group. Matrix spike analyses are performed in duplicate using five compounds and should be within the established quality control limits (EPA 1988b). The matrix spike analyses estimate how much the target

compounds are interfered with, either positively or negatively, by the sample matrix.

All matrix spike/matrix spike duplicate recovery results were acceptable.

2.5.2 Surrogate Recovery

Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. When a surrogate compound recovery is out of the control window, all positively identified target compounds associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J". Undetected compounds are qualified as having an estimated detection limit and flagged "UJ".

All surrogate recovery results were acceptable.

2.6 PRECISION

Precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Field precision is measured by analyzing duplicate samples taken in the field.

All matrix spike/matrix spike duplicate RPD results were acceptable.

2.7 INTERNAL STANDARDS PERFORMANCE

Internal standard performance was assessed to determine whether abrupt changes in instrument response and sensitivity occurred that may have affected the reliability of the analytical data. The response (area or height) of the internal standards must not vary by more than 100 percent or -50 percent from the response of the internal standard that was used to calculate the upper and lower bounds. The upper and lower bounds define the range for acceptable internal standard response (area/height) for the sample analyses.

All internal standard recovery results were acceptable.

2.8 COMPOUND IDENTIFICATION AND QUANTITATION

The identity of detected compounds are confirmed to investigate the possibility of false positives. The confirmation of compound identification during the quality assurance review focuses on false positives because only mass spectra for positive identifications are submitted. However, target compounds that

are reported as undetected are also evaluated to investigate the possibility of false negatives. Confirmation of possible false negatives is addressed by reviewing other factors relating to analytical sensitivity (e.g., relative response factors, detection limits, linearity, analytical recovery).

Compound quantitations and reported detection limits were recalculated for a minimum of 20 percent of the samples in each case to verify that they are accurate and are consistent with CLP requirements.

Below the CRQL, instrument precision becomes more variable as the instrument detection limit is approached. Therefore, the concentration of any compound that was detected below the CRQL was qualified as an estimate and flagged "J".

All reported results and quantitation limits were verified as correct.

2.9 OVERALL ASSESSMENT AND SUMMARY

A thorough review of ongoing data acquisition and instrument performance criteria was made to assess overall GC/MS instrument performance. No changes in instrument performance were noted that would result in the degradation of data quality. No indications of unacceptable instrument performance (i.e., shifts in baseline stability, retention time shifts, extraneous peaks, or sensitivity) were found during the quality assurance review.

In general, the volatile data presented in this report met the protocol-specified QA/QC requirements. Minor blank contamination was detected in four samples, all from laboratory blank contamination. All other validated data are considered valid and usable within the standard error associated with the method.

Project: WESTINGHOUSE-I	IANFOI	RD.		1											1						
Laboratory: TMA				1		1									:						
Case	SDG:	309066		1																	
Sample Number	<u> </u>	B09D66		B09D68		B09D86		B09D88		1B09D90		B09D92		B09D94		B09D96		B09DC4		B09DC6	
Location		199-F1-	2	199-F1-	2	199-F5-	-42	199-F5-	42		43A	199-F5-	43A		44	199-F5-	44	199-F6-	-1	199-F6-	1
Remarks		NV		NV		NV		INV		MA		NV		NV		NV		NV		NV	
Sample Date Analysis Date		10/29/93		10/29/93	<u>; </u>	10/30/93		10/30/93		10/30/93		10/30/93		10/30/93		10/30/93	-	10/30/93	_	10/30/93	
Volatile Organic Compound	ICROL	11/04/93 Result	Q	11/05/93 Result	a	11/04/93 Result	10	11/05/93 Result	a	11/04/93 Result	Q	11/06/93 Result	Q	11/04/93 Result	à	11/08/93 Result	io.	11/04/93 Result		11/05/93	
Chloromethane	10	10	U	10	ŭ		ü	10	2	}	U	L I	V		u		U U	10	Q		민
Bromomethane	10	10	Ü	10	Ü	10	tů	10	Ü		υ		Ŭ	10	l ù	10	Ü	10	Ŭ		뻐
Vinyl Chloride	10	10	Ū	10	Ū	10	ΙŪ	10	Ü	10	Ū		Ū	10	Ü	10	Ū	10	Ü		Ŭ
Chloroethane	10	10	U	10	U	10	U	10	U	10	Ū	10	U	10	ΰ	10	U	10	U	 	U
Methylene Chloride	10	10	U	10	U	1	Ĵ	10	Ü	10	Ū	10	υ	10	U	10	U	10	U	2	J
Acetone	10	10	Ü	10	U	10	U	10	U	10	U	10	U	10	Ü	10	U	10	U	10	U
Carbon Disulfide	10	10	U	10	U	10	Ū	10	U	10	U	10	U	10	U	10	Ü	10	U	10	Ū
1,1-Dichloroethene	10	10	٦	10	U	10	U	10	حا	10	U	10	Ū	10	Ü	10	U	10	Ū	10	Ü
1,1-Dichloroethane	10	10	ح	10	u	10	U	10	U	10	U	10	U	10	د	10	Ü	10	U	10	Ū
1,2-Dichloroethene (total)	10	10	U	10	U	10	U	10	ح	10	U	10	U	10	Ü	10	U	10	U	10	U
Chloroform	10	1	ے ا	10	U	10	U	10	5	10	U	10	U	10	Ü	10	U	10	U	10	Ü
1,2-Dichloroethane	10	10	U	10	u	10	U	10	כ	10	U	10	U	10	ح	10	Ü	10	Ü	10	U
2-Butanone	10	10	J	10	U	10	U	10	υ	10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane	10	10	U	10	<u>u</u>	10	U	10	٦	10	U	10	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride	10	10	Ų	10	U	10	U	10	ح	10	U	10	U	10	u	10	u	10	U	10	U
Bromodichloromethane	10	10	2	10	υ	10	U	10.	٦	10	U	10	U	10	U	10	U	10	U		U
1,2-Dichloropropane	10	10	٥	10	U	10	U	10	ے	10	U	10	U	10	U	10	U	10	U	1	U
cis-1,3-Dichloropropene	10	10	٥	10	U	10	U	10	υ	10	U	10	U	10	U	10	U	10	U		U
Trichloroethene	10	10	U	10	U	10	U	10	U	10	Ü		U	10	U	10	U	10	U	10	U
Dibromochioromethana	10	10	U	10	U	10	U	10	٥	10	U	10	U	10	ט	10	U	10	<u> U</u>	<u> </u>	U
1,1,2-Trichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzene	10	10	U	10	υ	10	U	10	U	10	U	10	U	10	J	10	U	10	U		U
trans-1,3-Dichloropropene	10	10	ū	10	U	10	U		U	10	U	10	U		ح	10	U	10	U		U
Bromoform	10	10	U	10	U	10	U	10	U	10	U	:= :	U	10	ט	10	U	10	U		U
4-Methyl-2-Pentanone	10	10	U	10	U	10	U	<u> </u>	U	10	U		บ	10	J	10	U	10	Ų		U
2-Hexanone	10	10	U	10	U	10	U.	10	U	10	U		U	10	٦	10	U	10	U		U
Tetrachloroethene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U		U	10	U	10	U
1,1,2,2-Tetrachloroethane	10	10	U	10	U	10	U		U	10	U		U		U		U	10	Ü		U
Toluene	10		U		<u>u</u>	10	U	10	u		U_		U_		Ü		U	10	U		U
Chlorobenzene	10		U		U	10	U	10	U	10	U		U		U	, ,	U	10	U		U
Ethylbenzene	10		ŭ		U	10	U	10	U	10	U	', T	U	10	U		U	10	U		U
Styrene	10		U		U	<u>:-</u> _	U		U		U	,-,	U		U		U	10	U	1	U
Xylene (total)	10	10	U	10	U	10	<u>U</u>	10	U	10	U	10	Ü	10	U	10	U	10	Ų	10	U

Project: WESTINGHOUSE-I	HANFO	RD		1																	
Laboratory: TMA				1																	
Case	SDG:	B09D66		1																	
Sample Number	•	B09DD2		1309DD4		B09DF4		1809DF6		B09DF8		B09DG0						T			
Location		199-F7-	-2	199-F7-	2	199-F8-	-3	199-F8-	3	199-F8-	4	199-F8-4	4								
Remarks		NV		144		NV		NV		NV		NV	-					Ī			
Sample Date		10/30/93		10/30/93		10/29/93		10/29/93		10/29/93		10/29/93									
Analysis Date	TARAI	11/08/93		11/05/93		11/08/93		11/05/93		11/08/93		11/05/93									
Volatile Organic Compound Chloromethade	 -		Q		Q		Q	Result			Q		_	Result	a	Result	Q	Result	Q	Result	Q
Bromomethane	10			10	U	10	Ü	10	<u>u</u>		U		: C				↓	ļ	 		\bot
	10	10	U	10	U	10	U	10	U		U		U				<u> </u>	_	<u> </u>	<u> </u>	
Vinyl Chloride	10	10	u	10	U	10	U	10	U		U	·	U				 				$oxed{oxed}$
Chloroethane	10	10	U	10	U	10	U	10	U	1	U		U				<u> </u>	ļ	<u> </u>		
Methylene Chloride	10		u	2	J	10	U	1	J		U	1	J				┖		ļ		
Acetone	10	10	u	10	U	10	U	10	υ	I	Ų		U				<u> </u>	<u> </u>			
Carbon Disutfide	10	10	U	10	U	10	U	10	ح		U		U				<u> </u>				
1,1-Dichloroethene	10	10	U	10	U	10	U	10	U		U		U					<u> </u>	[
1,1-Dichloroethane	10	10	U	10	U	10	U	10	ح		U	1 1	Ü								
1,2-Dichloroethene (total)	10	1	U	10	U	10	U	10	5	10	U	10	C				Ι		Ţ		\Box
Chloroform	10		U	10	U	10	U	10	د	<u> </u>	U	1 7	U				Γ				
1,2-Dichloroethane	10		U	10	J	10	Ü	10	رح	10	U	10	U								
2-Butanone	10		U	10	U	10	U	10	ح	.1	U	10	Ü				Π				
1,1,1-Trichloroethane	10	10	U	10	U	10	U	10	S	10	U	10	U				1				
Carbon Tetrachloride	10	10	Ü	10	U	10	Ų	10	υ	10	U	10	Ū				Г				
Bromodichloromethane	10	10	U	10	٦	10	U	10	J	10	Ū	10	Ü				Π		ĺ		
1,2-Dichloropropane	10	10	Ü	10	U	10	Ū	10	C	10	Ü	10	Ü					·	\Box		
cls-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U	10	Ū	10	U								
Trichloroethene	10	3	J	10	U	10	U	10	Ç	10	Ū	10	Ū					1			
Dibromochloromethane	10	10	U	10	U	10	U	10	J	10	Ū	10 (Ū								1-1
1,1,2-Trichloroethane	10	10	U	10	U	10	U	10	دا	10	Ü	10	U								
Benzene	10	10	U	10	U	10	Ū	10	U	10	Ū	10 1	U						†		1
trans-1,3-Dichloropropene	10	10	U	10	U	10	Ū	10	Ü	10	Ū	10 1	U	-			_				1-
Bromoform	10	10	U	10	U	10	υ	10	Ü	10	Ū	10 1	Ü				 		T		†
4-Methyl-2-Pentanone	10	10	U	10	Ü	10	Ü	10	U	10	Ū	10	Ū				 				+
2-Hexanone	10	10	U	10	U	10	ΰ	10	Ü		Ū		<u>י</u> י				 	 			+
Tetrachioroethene	10	10	U	10	U	10	U	10	U		Ū		Ū				 		\vdash		+
1,1,2,2-Tetrachloroethane	10	10	U	10	U	10	Ū	10	Ū		Ŭ	1	ŭ				t	†			+
Toluene	10	10	U	10	Ū	10	Ü		Ū	1	Ŭ		<u> </u>				 		t		$\dagger \Box$
Chlorobenzene	10		U		Ū	10	Ü	10	Ū		Ū		Ū	-	\dashv		-				+
Ethylbenzene	10		Ü		Ū	10	Ü	10	Ŭ		Ü		Ď							·	+
Styrene	10	10	Ū	10	Ŭ	10	Ŭ	10	บ		Ŭ		<u> </u>	-	+		\vdash	 	\vdash		+-1
Xylene (total)	10	10	Ū	10	Ü	10	Ü		Ŭ		Ü		<u>.</u>				\vdash	l			+
			╙				<u> </u>	<u>'º l</u>	<u></u>	ו ייי	۷.	<u></u>	۷	i				<u> </u>	L		لــــــــــــــــــــــــــــــــــــــ

Project: WESTINGHOUSE-		DD.		٦																	
Laboratory: TMA	INITIO	<u>nu</u>		1																	
Case	SIYS	B09D70		-														'			
Sample Number	10042	1809D70		B09D72		1B09DH8		1809DJ0	-:	TB09DJ6	-	1		r		1				ı ·	
Location		199-F5-		199-F5-	1	EB-1		EB-1	-:-	199-F5-	1	 						 			\dashv
Remarks		 				EB		EB	-;	MB-1		 						 			\dashv
Sample Date		10/28/93	•	10/28/93		10/28/93	}	10/28/93	F :	10/28/93		†				 		 		F	\dashv
Analysis Date		11/03/93		11/03/93		11/03/93		11/03/93		11/03/93	5					1	-	1			\neg
Volatile Organic Compound		1	Q	Result	Q		Q	Result	0		a	Result	Q	Result	a	Result	Q	Result	Q	Result	Q
Chloromethane	10	1	u	10	U	10	U	10	Ü		Ü	1					1				
Bromomethane	10		U	10	U	10	U	10	U		ح	<u> </u>					L				\Box
Vinyl Chloride	10		U	10	U	10	U	10	U		Ū						Π		-		
Chloroethane	10	10	U		Ü	10	U	10	Ü	10	J						Π	Ī			\Box
Methylerie Chloride	10	10	U	10	Ü	10	U	1	J	1	7						1				\Box
Acetone	10	10	U	10	J	10	U	10	Ü	10	Ü								İ		\Box
Carbon Disulfide	10	L	U	10	U	10	U	10	Ü	10	U						1	<u> </u>			\Box
1,1-Dichloroethene	10	10	U	10	U	10	Ū	10	Ų	10	U						1	1			\Box
1,1-Dichloroethane	10	10	U	10	U	10	U	10	Ü	10	U	1				· · · · · · · · · · · · · · · · · · ·	T^-	1	t		11
1,2-Dichloroethene (total)	10	10	U	10	U	10	U	10	Ü	10	υ					<u> </u>	1		1		
Chloroform	10	10	U	10	υ	10	Ū	10	ΰ	10	Ü					<u> </u>	1	 	 		+
1,2-Dichloroethane	10	10	U	10	υ	10	U	10	ΰ	10	Ū	1 1				<u> </u>	1	 	 		\vdash
2-Butanone	10	10	U	10	υ	10	U	10	ΰ	10	Ū						 	1	H		1
1,1,1-Trichloroethane	10	10	U	10	U	10	Ū	10	Ü		Ū	1					 	 	t	·	╁┤
Carbon Tetrachloride	10	10	U	10	U	10	Ū	10	Ū		Ü						 	 	 		+
Bromodic:hloromethane	10	10	Ū	10	U	10	Ū		ΰ		Ū	t 1					1		 		+
1,2-Dichloropropane	10	10	Ū	10	Ū	10	Ū		Ù		Ū	 					 	1			+
cis-1,3-Dichloropropene	10	10	u	10	Ū	10	Ū	10	Ü		U	 					 				+
Trichloroethene	10	10	Ū	10	Ü	10					Ü						 	 			+-1
Dibromochloromethane	10		Ū		Ū	10	Ū		Ü		Ü						1	 	-		+
1,1,2-Trichloroethane	10		Ū		Ū	10	l ŭ -		Ŭ		Ü	 					\vdash	 	┢		+
Benzene	10		Ū		Ū	10	i	10			Ü	 			-		\vdash		H		+-1
trans-1,3-Dichloropropene	10		U		Ü	10	Ü) C		Ü	1	$\overline{}$			<u> </u>	\vdash	 	 		+-1
Bromoform	10		Ü	10	Ū	10	ŭ		Ü		Ü	 			-		 	-	\vdash		+
4-Methyl-2-Pentanone	10		U		Ü		ŭ		Ü		Ü	 					\vdash		-		+
2-Hexanone	10		Ü	10	Ŭ	10	Ü		Ü		υ						╀	 	-		+
Tetrachloroethene	10		Ü		Ŭ		Ŭ	10	_		U	 					-		 		\vdash
1,1,2,2-Tetrachloroethane	10	10	<u> </u>	10	Ŭ	10	u		5		U	 					-	-			┼ —Ì
Toluene	10		Ü		U	10	Ü		Ü		U	ļ 					 	 	 		+
Chlorobenzene	10	10	ü		Ü	10	Ü		ü		-				_		├	 	_		1
Ethylbenz:ene	10		U	<u> </u>	Ü				Ü		U U						 -	ļ	<u> </u>		+
Styrene	10		Ü		Ü	10	<u>u</u>								_		<u> </u>	ļ			+
Xylene (total)	10		Ü		Ü		U		<u>u</u>		. C						 	ļ			$\perp \downarrow$
A Storie (strictly	10	10	v	10	<u>u</u>	10	U	10	U	10	U	L I	1				L				Ш

Project: WESTINGHOUSE-I	HANFO	HD																			
Case	iene.	B09D78																			
Sample Number	Joba.	B09D78		B09D80		1B09D98		1B09DB0		IB09DJ7		T				T		r		1	
Location		199-F5-		199-F5-	4			199-F5-		199-F5-	45	 				 		 		 	
Remarks		NV		NV.	•	NV		NV	·-	MB-2		 						 		 	
Sample Date		11/06/93		11/06/93		11/06/93	3	11/06/93		11/06/93	1	 						<u> </u>		-	
Analysis Date		11/12/93		11/12/93		11/12/93	}	11/12/93	1	11/12/93	,	1									
Volatile Organic Compound		i	Q	Result		Result	Q	Result	Q		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	. 10	U	10	U	10	บ	L	U						4				
Bromomethane	10	10	U	10	U	10	U	10	บ	10	U								Ī		
Vinyl Chloride	10	10	U	10	Ü	10	U	10	U	10	U								Ī		T
Chloroethane	10	10	U	10	U	10	U	10	Ü	10	Ū								1		1
Methylene Chloride	10	10	U	10	Ü	10	U	10	U	10	Ü	1			1	1			1		1
Acetone	10	10	Ű	10	U	10	Ū	10	U	10	U	1 1			Γ		Τ	1	1		1
Carbon Disulfide	10	10	U	10	U	10	U	10	U	10	U				1	1		1	T		1
1,1-Dichloroethene	10	10	Ü	10	U	10	Ū	10	U	10	IJ										1
1,1-Dichloroethane	10	10	Ü	10	U	10	u	10	Ū	10	Ū	1					T		 	1	1
1,2-Dichloroethene (total)	10	10	U	10	Ü	10	u	10	U	10	Ü							†		1	
Chloroform	10	10	U	10	J	7	J	10	Ū	10	U			······································		1	\dagger		\top	1	1
1,2-Dichloroethane	10	10	Ü	10	Ü	10	U	10	Ü	10	ΰ	1					T	İ	十		1
2-Butanone	10	10	U	10	Ū	10	U	10	U	10	Ü				<u> </u>	1	1	†	†		1
1,1,1-Trichloroethane	10	10	U	10	Ū	10	Ū	10	U	. 10	υ						\top	1	1	<u> </u>	\top
Carbon Tetrachioride	10	10	U	10	Ü	10	U	10	U	10	Ū	1							l	· · · · · · · · · · · · · · · · · · ·	1
Bromodichloromethane	10	10	U	10	U	10	U	10	U	10	Ü						T		T		1
1,2-Dichloropropane	10	10	U	10	U	10	U	10	Ü	10	U	1 1				i	1		1	<u> </u>	
cls-1,3-Dichloropropene	10	10	Ü	10	υ	10	Ū	10	Ų	10	Ū						1		 		1
Trichloroethene	10	10	U	10	U	1	J	10	U	10	Ų	1. 1					t		├ ┈		+
Dibromochloromethane	10	10	Ü	10	U	10	U	10	Ū	10	U						T		t^-	<u> </u>	+
1,1,2-Trichloroethane	10	10	U	10	Ū	10	Ū	10	Ū		Ū	1				 	†	†- -	t		+
Benzene	10	10	Ü	10	U	10	U	10	U		Ū	1				!			 		1
trans-1,3-Dichloropropene	10	10	Ü	10	Ü	10	U	10	U	, 10	Ü	1					†	1		· · · · · ·	+
Bromoform	10	10	J	10	Ū	10	Ū	10	J		U	1 1					1	İ	t		+
4-Methyl-2-Pentanone	10	10	Ü	10	U	10	U	10	Ū		Ü				-				 	 	1
2-Hexanone	10	10	U	10	Ū	10	U	10	U		U	1					 	 		 	+
Tetrachloroethene	10	10	u	10	U	10	U	10	U	 	Ū				_		1	<u> </u>	 		1
1,1,2,2-Tetrachloroethane	10		U	10	Ū	10	U	10	Ū		Ū	† †					†		\vdash		1
Toluene	10		U	10	Ū	10	Ū	10	Ü		U						-	<u> </u>	t		1
Chlorobenzene	10		U	10	Ū	10	Ü		Ü		Ū						 	 	\vdash		+
Ethylbenzene	10		u		Ü		Ü	· · · · · · · · · · · · · · · · · · ·	Ü		Ü		\dashv				┢	 -	 		+
Styrene	10		Ū		Ü		Ŭ		Ŭ		Ü	 					 	 			+-
Xylene (total)	10		Ü		Ŭ		Ü	10			Ü		\dashv				┢	 	-		+
7 (10101)			<u>.</u>		<u> </u>	1 10	_				٠.					1	L	l	I.	1	1

Designation of the second	HANCO	00		1																	
Project: WESTINGHOUSE-I	HANFU	HU																			
Case	ene:	B09D82		-																•	
Sample Number	obd.	1B09D82		B09D84		IB09DG2	,	B09DG4		1		T		T		Τ.		l		Τ΄	
Location		199-F5-		199-F5-		199-F5-		199-F5-		 		 		 		╁╌		<u> </u>			
Remarks		1:== 1.=		1	<u> </u>	DUP	<u> </u>	DUP	-	 		 		1		 		 			
Sample Date		10/26/93	3	10/26/93	3	10/26/93		10/26/93	}	<u> </u>		 		† — ·		† <u>-</u>		1		-	
Analysis Date		11/02/93	3	11/02/93	1	11/02/93	}	11/02/93	3							<u> </u>		1			
Volatile Organic Compound	CROL		Q		Q	1	Q	L	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U	10	U	10	U	<u> </u>	L_					<u> </u>	<u>l</u>	<u>l</u>			
Bromomethane	10	10	U	10	U	10	U	10	U		Ī]						l	Ì		
Vinyl Chloride	10	10	U	10	U	10	U	10	U												
Chloroethane	10	10	U	10	U	10	Ū	10	U										ĺ		
Methylene Chloride	10	10	Ü	1	J	10	Ü	3	J									Ī			
Acetone	10	10	U	10	U	10	U	10	U							T -			1		
Carbon Disulfide	10	10	Ü	10	U	10	U	10	U							Ī -			1		
1,1-Dichloroethene	10	10	U	10	U	10	U	10	U							1			1		
1,1-Dichloroethane	10	10	Ü	10	U	10	U	10	U	1							T				
1,2-Dichloroethene (total)	10	10	U	10	U	10	Ū	10	U		Ī					T -					
Chloroform	10	10	U	10	U	10	U	10	U	1						1					
1,2-Dichloroethane	10	10	Ü	10	U	10	U	10	U	1						1	1				
2-Butanone	10	10	Ü	10	U	10	Ü	10	Ū	İ						<u> </u>	1				
1,1,1-Trichloroethane	10	10	U	10	U	10	U	10	U	1	1										\top
Carbon Tetrachloride	10	10	Ü	10	Ų	10	U	10	U										1		T
Bromodichloromethane	10	10	U	10	U	10	Ü	10	Ū	Ī							Ī				
1,2-Dichloropropane	10	10	U	10	U	10	U	10	U	T		Ī									
cis-1,3-Dichloropropene	10	10	U	10	Ū	10	Ū	10	Ū								ľ				
Trichloroethene	10	10	U	10	U	10	U	10	Ū							Ī					1
Dibromochloromethane	10	10	Ü	10	U	10	Ū	10	U	<u> </u>							Π		Î		
1,1,2-Trichloroethane	10	10	U	10	Ū	10	Ū	10	U								1		1		1
Benzene	10	10	U	10	Ū	10	Ü	10	U												
trans-1,3-Dichloropropene	10	10	U	10	U	10	U	10	Ü	1	Π					1	1	1			1
Bromoform	10	10	Ū	10	U	10	U	10	Ü					1	1		T	1	1		1
4-Methyl-2-Pentanone	10	10	υ	10	Ü	10	U	10	Ü			1					†	1	İ		1-
2-Hexanone	10	10	U	10	U	10	Ū	10	U	1		1					1-	1			1
Tetrachloroethene	10	10	Ü	10	U	10	U	10	Ü		1	1	 	1	1	1	\top	1	1		1
1,1,2,2-Tetrachloroethane	10	10	U	10	Ū	10	Ū	10	Ü	l	İ			1	Ī			1			
Toluene	10	10	Ū	10	U	10	U	10	Ū	1	Τ	1		<u>† </u>	1	†		T	1		1
Chlorobenzene	10	10	Ü	10	U	10	U	10	U				Ì				T	1			1
Ethylbenzene	10	10	Ü	10	Ū	10	U	10	U	1	1	 		1	1		t		†		1
Styrene	10	10	U	10	U	10	U	10	U		\vdash	1			<u>† </u>	1	1		†		\top
Xylene (total)	10	 	Ü	10	Ū	10	Ū	10		1	t —						1			1	1
<u> </u>			 -		L	l	ــــــــــــــــــــــــــــــــــــــ	—— —	ــــــ	↓	ч—				<u> </u>			· · · · · · · · · · · · · · · · · · ·			

In the second second																					
Project: WESTINGHOUSE-	HANFO	RD	_																		
Laboratory: TMA Case	1000	000000											•								
Sample Number	SDG:	B09DB2 1B09DB2		B09DB4		B09DD6	,	B09DD8					·	,							
Location		199-F5-		199-F5-		199-F7-		199-F7-				<u> </u>						ļ			
Remarks		NV	40	NV		NV	-3	NV		 			.			 		ļ		! 	
Sample Date		11/06/93	1	11/06/93		11/06/93	3	11/06/93	1			 								├ ──	
Analysis Date		11/15/93		11/15/93		11/15/93	-	11/15/93		<u> </u>		 				<u> </u>					
Volatile Organic Compound	CROL	Result	Q	Result	Q	Result	Q		Q	Result	Q	Result	o-	Result	IQ	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	Ū	10	Ū	10	Ū		 	1			1	i			 		\top
Bromomethane	10	10	U	10	Ü	10	Ü	10	U	1					T						1
Vinyl Chloride	10	10	Ū	10	U	10	Ü	10	Ū	1		1						1			1
Chloroethane	10	10	Ü	10	Ü	10	Ū	10	U							1		İ	†		1
Methylene Chloride	10	5	J	6	J	2	J	6	J						1						1
Acetone	10	10	Ū	10	U	10	ΰ	10	U		-	<u> </u>				<u> </u>	 		t		_
Carbon Disulfide	10	10	Ü	10	Ü	10	ΰ	10	U			† ·- · · · · · · · · · · · · · · · · · ·				<u> </u>	-		 		+
1,1-Dichloroethene	10	10	U	10	Ū	10	ΙŪ	10	Ū		\vdash				<u> </u>		┢		 		+
1,1-Dichloroethane	10	10	U		U	10	Ū	10	Ū		-	<u> </u>	-		-		1				┪┈
1,2-Dichloroethene (total)	10	10	Ū	10	υ	10	U	10	Ū			†						t	\vdash	<u> </u>	+
Chloroform	10	3	J	10	Ü	10	Ū	10	U								\vdash	†			1
1,2-Dichloroethane	10	10	Ü	10	U	10	U	10	U						╁	<u> </u>	┢				+
2-Butanone	10	10	Ü	10	U	10	U	10	U							<u> </u>	_	i			+
1,1,1-Trichloroethane	10	10	U	10	U	10	Ū	10	U		 -	1							\vdash		†
Carbon Tetrachloride	10	10	Ū	10	U	10	u	10	Ū			<u>†</u>			T				<u> </u>		1
Bromodichloromethane	10	10	U	10	Ü	10	Ū	10	Ū		Г				İ				<u> </u>	<u> </u>	1
1,2-Dichloropropane	10	10	U	10	U	10	Ü	10	U			†									
cis-1,3-Dichloropropene	10	10	Ū	10	U	10	U	10	Ū		\vdash								 		
Trichloroethene	10	4	J	10	J	2	J	10	U										İ		1
Dibromochloromethane	10	10	U	10	IJ	10	U	10	Ü	<u> </u>											
1,1,2-Trichloroethane	10	10	U	10	U	10	U	10	Ü					1			 -				_
Benzene	10	10	J	10	Ū	10	Ū	10	Ü									i			†
trans-1,3-Dichloropropene	10	10	J	10	Ū	10	Ū	10	U					·					1		†
Bromoform	10	10	U	10	U	10	U	10	U								<u> </u>	<u> </u>	1		
4-Methyl-2-Pentanone	10	10	U	10	Ü	10	U	10	Ū								l				†
2-Hexanone	10	10	U	10	Ū	10	U	10	υ								<u> </u>	-			_
Tetrachloroethene	10	10	U	10	Ū	10	Ū	10	υ										I^-		1
1,1,2,2-Tetrachloroethane	10	10	U	10	Ū	10	Ū	10	U	<u> </u>									†		1
Toluene	10	10	U	10	U	10	U	10	Ū												1
Chlorobenzene	10	10	Ū	10	U	10	U	10	U		-								1		\top
Ethylbenzene	10	10	U	10	Ü	10	J		U										l		1
Styrene	10	10	Ū	10	Ū	10	U	10	U												
Xylene (total)	10	10	U	10	Ū	10	U	10	U							· 					1

Project: WESTINGHOUSE-F	ANEO	CIO.		7			:					-									
Laboratory: TMA	IAIN O	TE		ł																	
Case	SDG:	B09DB6		į								:									
Sample Number		B09DB6		B09DB8		IB09DC0		B09DC2		B09DF0		B09DF2		B09DG6		B09DG8	,	Τ			
Location		199-F5-	47	199-F5-	47	199-F5-4	48	199-F5-	48	199-F8-	2	199-F8-2	2	199-F5-		199-F5-		 			
Remarks						NV		NV		NV		NV		DUP		DUP		1			
Sample Date		10/31/93		10/31/93		10/31/93		10/31/93		10/31/93		10/31/93		10/31/93		10/31/93		İ			
Analysis Date	CABAIT.	11/09/93		11/09/93		11/09/93		11/09/93		11/09/93		11/10/93		11/10/93		11/10/93		L			
	CROL.	Result	a		a		Q		a		Q		Q_		a		Q	Result	a	Result	Q
Chloromethane	10	10	U		U	1 1	Ū		U	1 1	U	A	Ü	10	U	10	U	ļ. <u></u> -	_	ļ	ــــــ
Bromomethane	10	10	U		U	t	U	10	U		U		U	10	U	10	U	<u> </u>	<u> </u>	ļ	
Vinyl Chloride	10	10	U	10	U		U	10	U		U	1	U	10	U	10	U		L.		
Chloroethane	10	10	U	10	U		U	10	U	10	U		U	10	J	10	U		<u> </u>		\perp
Methylene Chloride	10	10	U	10	U		U	10	U		U		U	10	U	10	U	<u> </u>	L.,	<u> </u>	
Acetone	10	10	U	10	U	 	<u>U</u>	10	U	10	U		<u>U</u>	9	J	23		<u> </u>	<u> </u>		
Carbon Disulfide	10	10	U	10	U		U	10	U	10	U	1	U	10	U	10	U				
1,1-Dichloroethene	10	10	U	10	U		U.	10	U	10	U	1 1	U	10	כ	10	U				
1,1-Dichloroethane	10	10	U	10	U		U	10	U		U	,	U	10	٦	10	U				T
1,2-Dichloroethene (total)	10	10	U		U	1	U .	10	U	10	U	I I	U	10	C	10	U				
Chloroform	10	10	U	10	U	10	U	10	U	10	U	10	U	10	C	10	U				
1,2-Dichloroethane	10	10	U	10	U	10	U -	10	U	10	U	10	Ū	10	5	10	U				1
2-Butanone	10	10	U	10	U	10	U ·	10	Ü	10	Ū	10	U	10	Ü	10	U	1			\top
1,1,1-Trichloroethane	10	10	υ	10	U	10	Ū.	10	U	10	Ū	10	U	10	U	10	U				1
Carbon Tetrachloride	10	10	U	10	Ū	10 (U .	10	U	10	U	10	Ū	10	J	10	Ū	1			
Bromodichloromethane	10	10	U	10	U	10	U	10	U	10	Ū	10	U	10	Ū	10	U				\top
1,2-Dichloropropane	10	10	U	10	U	10 1	Ū i	10	U	10	U	10	Ū	10	U	10	Ū	1	Ì		+
cis-1,3-Dichloropropene	10	10	J	10	U	10	U	10	J	10	Ü	10	U	10	U	10	U		<u> </u>		十
Trichloroethene	10	10	C	10	Ū	2 .	J	10	U	10	U	10	Ū	10	U	10	U	†···			1
Dibromochloromethane	10	10	Ü	10	Ū	10 l	Ū.	10	IJ	10	Ū	10	Ü	10	Ü	10	U	†	<u> </u>	 	+-
1,1,2-Trichloroethane	10	10	U	10	U	10 1	U	10	Ü	10	Ū		U	10	Ū		Ū				+
Benzene	10	10	U	10	U		Ū		J		U		Ū	10	Ū		Ū	t	\vdash		+
trans-1,3-Dichloropropene	10	10	Ü	10	Ü	10 (Ū	10	U		Ū		Ū		Ü		Ü	 	 		+
Bromoform	10		U		Ū		ָּדָי ע		Ū		Ū		Ŭ		Ü		Ü		 		+
4-Methyl-2-Pentanone	10	10	U		Ū		J T	10	Ū		U		Ü		Ŭ		Ü	 	\vdash	· · · · · · · · · · · · · · · · · · ·	+
2-Hexanone	10		Ū		Ü		J -	10	Ū		Ü		U	10	ĭ d	10	ü	 	-		+
Tetrachloroethene	10		Ŭ		Ŭ		<u> </u>		Ü		Ŭ		U	10	ill		11	 	 		+
1,1,2,2-Tetrachloroethane	10		υ		Ü		<u>, </u>		Ü		<u> </u>		ij		ᆔ		ü	 	 -		+
Toluene	10		Ü		Ü		<u>, </u>		Ü		Ü		Ü		ii l		U		-		 —
Chlorobenzene	10	10	Ü		Ŭ		,		Ü	· · · · · · · · · · · · · · · · · · ·	<u> </u>				ŭ l		U	 	ļ		+
Ethylbenzene	10	10	ŭ l		Ü		_		Ü		Ü		ט ט		띪		U	 	<u> </u>		+
Styrene	10		U		וו		<u>, </u>		_		_										+
Xylene (total)	10		U U						<u>u</u>		<u>u</u>		יי		<u>u</u>		<u>υ</u>	ļ			\bot
Ayrores (IUIai)	10	10	U	10	υſ	10 L		10	U	10	U	10 (U	10	u	10	บ				

Project: WESTINGHOUSE-I	TANFOR	an		ו																	
Laboratory: TMA	181111 01			}																	
Case	ISDG: 1	B09DC8																			
Sample Number		B09DC8	_	B09DD0		Γ				T		Π				1					
Location		199-F7-	-1	199-F7-	1	i		1				1									
Flemarks		NV		NV																	
Sample Date		10/27/93		10/27/93																	
Analysis Date		11/02/93		11/02/93		<u> </u>													T.A.	- G	
Volatile Organic Compound						Result	Q	Result	Q	Result	Q	Result	<u> Q</u>	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10		10	υ		L	<u> </u>			1		<u> </u>		<u> </u>		<u> </u>	ļ	ļ	<u> </u>	igspace
Bromomethane	10	1	U		دا	<u> </u>	<u>L.</u>	<u> </u>		<u> </u>	L.	<u> </u>	<u> </u>		<u>L</u> _				<u> </u>	L	$\perp \!\!\! \perp \!\!\! \perp$
Vinyl Chloride	10	10	U	10	U	Γ	<u></u>				<u>l</u>		<u> </u>								
Chloroethane	10	10	U	10	J							}			Ĺ.				L		
Methylene Chloride	10	2	J	2	J	Ī							<u> </u>				<u> </u>		L		$oldsymbol{\perp}$
Acetone	10	10	U	10	υ		Π	1]				Γ]		<u> </u>	
Carbon Disulfide	10	10	U	10	Ü																
1,1-Dichloroethene	10	10	Ū	10	Ū		Π														
1,1-Dichloroethane	10	10	U	10	Ü		1						П				I	Ì			
1,2-Dichloroethene (total)	10	10	U	10	Ü		Π	1 .					1	1			T			<u> </u>	
Chloroform	10	10	U	10	U						1	Ī							Π		
1,2-Dichloroethane	10	10	U	10	U	1					1		1					}			
2-Butanone	10	10	Ū	10	U		Τ	1					1				1		Π	Ī .	
1,1,1-Trichloroethane	10	10	Ū	10	Ū		1			1			1		1		T	1	Π		
Carbon Tetrachloride	10	10	U	10	Ū							1	1								
Bromodichloromethane	10	10	U	10	Ū	<u> </u>		1			1	1	\Box				Т				
1,2-Dichloropropane	10	10	U	10	U	-		T			1		1 .					Ī			
cis-1,3-Dichloropropene	10	10	U	10	U		1	1					П			1		1			7
Trichloroethene	10	21		21		1		1					1		Τ						
Dibromochloromethane	10	10	U	10	U		1	 	<u> </u>	!	1			İ	1		1		1		
1,1,2-Trichloroethane	10	10	Ū	10	Ū	<u> </u>	1	1				1		1	1-					\vdash	
Benzene	10	10	Ū	10	U		1	+			1	1	1	<u> </u>	T		1	1		1	
trans-1,3-Dichloropropene	10		ΙŪ	10	υ	ł	1	T			1		1	1	1		1				
Bromoform	10	10	Ū	10	U	 	✝	1	—	 	1	<u> </u>	1	<u> </u>	 	ļ	1	†	T		
4Methyl-2-Pentanone	10	10	Ū	10	U		1	1			1	<u> </u>	1							\vdash	
2-Hexanone	10	1	Ū	10	u		1		1		1		1-	<u> </u>			1		1	1	
Tetrachloroethene	10	10	lυ	10	Ū	 	1	1			1	1	1	1	1		1	Ť		\vdash	
1,1,2,2-Tetrachloroethane	10		Ū	10	U	 -	1	1			1	 	✝			† · · · · ·	1		 	 	
Toluene	10	10	Ū	10	U		Т	1			1	1	1				1	1		1	
Chlorobenzene	10	10	lu		Ü		t	 	 	t	1-	1	 	t	1	t	1	1	t	\vdash	1
Ethy!benzene	10	10	Ü	10	Ŭ	 	\vdash	 	-		†	† 	1	1	 	1	T	† 	1	\vdash	1
Styrene	10	10	Ιυ	10	ŭ		╁╌	1	 	 	†-	 	1	 	\vdash	t	+	 	1	 	+
Xylene (total)	10		Ü		Ŭ	 	 	 			 	 	 	†	├-	l	+-	 	 	<u> </u>	+
Vision of (royar)	10	10	10	10	2_	L	Ь.	·	Щ_	 _		1	J	<u> </u>	1	<u> </u>		1	Ц.	 	

Project: WESTINGHOUSE-	HANFO	RD		<u>ה</u>																	
Laboratory: Roy F. Weston				1																	
Case	SDG:	воэрно		†						i		•									
Sample Number	İ	B09DH0		B09DH2		· · · · · · · · · · · · · · · · · · ·									+						
Location	i	199-F5-	-6	199-F5-	6																
Remarks		SPLIT		SPLIT																<u> </u>	
Sample Date		10/26/93		10/26/93						,											
Analysis Date	TOBOL:	11/01/93		11/01/93			18	<u> </u>				ļ							124		
		4	Q		a	Result	ļu.	Result	u	Result	10	Result	<u>u</u>	Result	Q	Result	<u>Q</u>	Result	Q	Result	Q
Chloromethane	10	10	U	10		 					ــــــ	ļ			<u> </u>	 	<u> </u>		<u> </u>		↓_
Bromomethane	10	10	U		ح	ļ <u>.</u>	↓_				<u> </u>	<u> </u>			<u> </u>		辶		1		$oldsymbol{\perp}$
Vinyl Chiloride	10	10	U	10		<u> </u>	_	J			<u> </u>	<u> </u>			Ŀ					<u> </u>	
Chloroethane	10	10	U	10					L		L	<u> </u>			Ŀ	<u> </u>	1				
Methylene Chloride	10	10	U		دا	<u> </u>	<u></u>														
Acetone	10	10	U	10	٦						<u>L</u>										
Carbon Disutfide	10	10	U	10	اد																T
1,1-Dichloroethene	10	10	U	1	٦				T			1			T-		T				\top
1,1-Dichloroethane	10	10	U	10	حا		T	1							1			<u> </u>			1
1,2-Dichloroethene (total)	10	10	U	10	U		1		T			1					†		i i	ĺ	
Chloroform	10	1	J	10	U			1	1			<u> </u>	\vdash	1		<u> </u>			T		1
1,2-Dichloroethane	10	10	U	10	U	 	1	1	1		1	<u> </u>					\vdash		1	·	\top
2-Butanone	10	10	Ü	10	C		1		1												1
1,1,1-Trichloroethane	10	10	U	10	υ		1		†						1				1	1	†
Carbon Tetrachloride	10	10	U	10	U	l	\top	<u> </u>	†			1			† ─	<u> </u>	1				1-
Bromodichloromethane	10	10	Ü	10	b	<u> </u>	1-	İ			1	†	<u> </u>						 		1
1,2-Dichloropropane	10	10	U	10	U				1		1	1	 -		<u> </u>	<u> </u>	 		†		+
cis-1,3-Dichloropropene	10	10	Ü	10	υ		1	 	1	ļ	t	 	┢	 		} <u>-</u>	 		 		+
Trichlorgethene	10		U	10		 	 		 		\vdash	 	\vdash		<u> </u>			· - · · · · · · · · · · · · · · · · · ·	_		+
Dibromochloromethane	10		Ū	10		ļ <u>.</u>	\vdash		1		†	 	-		1		 	 			┼─
1,1,2-Trichloroethane	10	10	ij.		Ū	 	 				 	 	 		-		\vdash	 	-		+
Benzene	10	10	Ŭ.		Ū	 	-	 	t		┼─	 		 			\vdash	 	-		+
trans-1,3-Dichloropropene	10		Ü		u		╁	 	1		\vdash	·			-		\vdash		├		+
Bromoform	10	1	Ü		U	 	╫		 		\vdash	-	-		<u> </u>	<u> </u>	├	 		-	+
4-Methyl-2-Pentanone	10	10	Ü		υ	 	\vdash				┢	-					├─				+
2-Hexamone	10	10	Ü		Ü		 				 		_		\vdash		├				+
Tetrachloroethene	10	10	Ü		Ü	 	\vdash	-			\vdash	-			\vdash				-		+
1,1,2,2-Tetrachloroethane	10		U U		ü		\vdash	 -			 	 		<u> </u>	H		\vdash				
Toluene	10		Ü		Ü	-	├-								\vdash	<u> </u>	\vdash		\vdash		+
Chlorobenzene	10		U U		U		┼								<u> </u>		\vdash		\vdash	_	+
Ethylbenzene	10		U		U		├						<u> </u>		$\vdash \dashv$		<u> </u>		<u> </u>		┿
<u> </u>	10		_	<u> </u>			├		<u> </u>			<u> </u>							<u> </u>		$+\!-$
Styrene			<u>u</u>	1 —	U_	<u> </u>	<u> </u>		<u> </u>		\vdash	ļ							<u> </u>		₩
Xylene (total)	10	10	U	10	Ų		L	<u> </u>					<u> </u>				L		<u> </u>	l	

WHC-SD-EN-TI-238, Rev. (

BLANK AND SAMPLE DATA SUMMARY

SDG: B09DH0	REVIEWER: SC			DAT	Ę: 1/19/9	4	PAGE_1_OF_1_				
COMMENTS:				·							
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER		
VBLK	Methylene Chloride	3	J		ug/L	15	30	B09DH0, B09DH2	U		
VBLK	Acetone	3	l		ug/L	15	30	B09DH2	U		
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			<u> </u>			_					
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WHC-SD-EN-TI-238, Rev. 0 DATA QUALIFICATION SUMMARY

SDG: B09DH0	REVIEWER: SC	DATE: 1/19/94	PAGE_1_OF_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Methylene Chloride	U	B09DH0, B09DH2	Lab Blank Contaminatio
Acetone	U	B09DH2	Lab Blank Contaminatio
	, , ,		
			·
			

Project: WESTINGHOUSE-I	ANFO	30		1																	
Laboratory: Roy F. Weston				1																	
Case	SDG:	309DH4		1																	
			B09DH4																		
				199-F5-	47																
				SPLIT																	
		10/31/93		10/31/93				<u> </u>			_			<u> </u>				<u></u>			
				11/03/93		Doorda	Result Q Result Q		10	Dogula (O		Donile	Don. k IO		Dog. N. IO		т~	Result Q		Result	- N
Volatile Organic Compound Chloromethane	10		U		Q U	Result	<u> u</u>	Hesur	Q	Result	Q	Result	O	Result	a	Result	Q	rvesuit	u.	LIGSUIL	Q
Bromomethane	10	10	Hu-		ט	 	┞	 	 		╀─	 	 	 	\vdash		╂	 	┼—		┼
			T			-	┼	 	 		├ ─		-	ļ	<u> </u>	├	1	 	╁	 	+
Vinyl Chloride	10	10	U	10	U	 	┞-	↓	—		↓_	 	₩	_	—	ļ	 	ļ	╁—		+
Chloroethane	10		U	10	U	<u> </u>	↓_	ļ		ļ	↓	 -	 	<u> </u>	_	 -	 	<u> </u>			┼
Methylene Chloride	10	6	J	5	J_	<u> </u>	┡	 	 		↓	ļ	├	 	_	 	-	 -	┼		—
Acetone	10	10	U	10	U	ļ	┞	ļ		ļ. <u>. </u>	↓	<u> </u>	 	<u> </u>	_		├	<u> </u>	╁		$+\!\!\!-$
Carbon Disulfide	10	10	U	10	U	ļ	↓_	ļ <u>.</u>	<u> </u>	ļ	↓		ــــــ	↓			 	ļ	↓		+
1,1-Dichloroethene	10	1	U	10	U		<u> </u>	ļ	_		↓	ļ	ـــ	<u> </u>			╀-	 	₩		┿
1,1-Dichloroethane	10	1	U	10	U	ļ <u>.</u>	ــــــــــــــــــــــــــــــــــــــ		<u> </u>	ļ	↓	 	 	ļ	<u> </u>		-	 	↓		—
1,2-Dichloroethene (total)	10	10	U	10	U	<u> </u>	\perp	<u> </u>	_		ļ	<u> </u>	↓_	ļ	<u> </u>	<u> </u>	_		 	ļ	┷
Chloroform	10	10	U	10	U		<u> </u>		ļ			ļ	<u> </u>	<u> </u>			<u> </u>	↓	↓	ļ	
1,2-Dichloroethane	10	10	U	10	J	<u> </u>	_		L			<u> </u>	<u> </u>	<u> </u>			<u> </u>	<u> </u>	↓		
2-Butanone	10		U	10	U		_		<u> </u>		1	<u> </u>	<u> </u>	<u> </u>				<u> </u>	<u> </u>		
1,1,1-Trichloroethane	10		U	10	U	1					<u> </u>						<u> </u>	<u> </u>	1		
Carbon Tetrachioride	10	10	U	10	U								<u> </u>	<u> </u>	<u></u>	L	<u> </u>		<u></u>	1	\perp
Bromodichloromethane	10		U	10	U]					<u> </u>	L	<u> </u>				<u> </u>				<u> </u>
1,2-Dichloropropane	10		U	10	U	}	Г				T	}	1				1	<u> </u>			
cis-1,3-Dichloropropene	10	10	Ū	10	U		Π				T										
Trichioroethene	10	10	U	10	U		П	<u> </u>			T			Ι			<u>i</u>				
Dibromochloromethane	10	10	U	10	U								П	T			П		T		
1,1,2-Trichloroethane	10	10	U	10	U						1		i								
Benzene	10	10	Ū	10	U	1	Г		1		1							1			
trans-1,3-Dichloropropene	10	10	U	10	U	1	Π	1			I^-		1								
Bromoform	10	10	U	10	U	1	1	1			1	1		1		1	T		1	[T
4-Methyl-2-Pentanone	10	10	U	10	U			1			1		1					1	1		T
2-Hexanone	10	10	U	L	U	1	1	1		<u> </u>	T		1	1	Π	_			1		1
Tetrachloroethene	10		U		U		1	1	1		1							1	1		1
1,1,2,2-Tetrachloroethane	10		Ü	10	U	1	<u> </u>		1		1	1	1	<u> </u>	<u> </u>	<u> </u>		<u> </u>			T
Toluene	10	10	U	10	U	1	Г		Γ		İΤ		Π	1		1	T		\sqcap		1
Chlorobenzene	10		U		Ū						1		1	1		<u> </u>	1		1	T	1
Ethylbenzene	10		U		Ū						1		t	f			1				1
Styrene	10		Ū	10	Ū	 	 	1	Ι.		 	 	1			 	1	1	T		1
	10		U		Ū	<u> </u>	1			· · · · ·	†	1	 	1		<u> </u>	†	1			\top
Styrene Xylene (total)				10			_		<u> </u>		_		-				-				1

Project: WESTINGHOUSE-I	<u> TABIEM</u>	<u> </u>		1						•										1	
Laboratory:	MANFUI	NU .																		•	
Case	igng. I	B09DJ2		1									•							•	
Sample Number		1B09DJ2		B09DJ4		T		T				i				r		1		Γ	
Location		EB-2		EB-2		 		 				-		 							
Remarks		EB		E8		1		 						<u> </u>							
Sample Date		11703/93		11/03/93						i		1									
Analysis Date		11/09/93		11/09/93																	
Volatile Organic Compound			_		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10		U	1	U			<u> </u>	<u> </u>										L	<u>'</u>	<u> </u>
Bromomethane	10	10	u		Ū		<u> </u>		<u> </u>										L		<u> </u>
Vinyl Chloride	10		Ų		U														<u>L.</u>		
Chloroethane	10	10	Ū		Ū					l										<u> </u>	<u></u>
Methylene Chloride	10	10	U		U		Ι														П
Acetone	10	10	U	10	U		Π				T										\Box
Carbon Disulfide	10	10	U	10	U		1			I											I
1,1+Dichloroethene	10	10	Ū	10	Ū			·													
1,1-Dichloroethane	10	10	U	10	U												1		Π		\top
1,2-Dichloroethene (total)	10	10	U	10	U			1		1		1		1		1	1				1
Chloroform	10	10	Ü	10	Ū							1					İ			·	\top
1,2Dichloroethane	10	10	U	10	υ			†				1		<u> </u>			1		\Box	- '	\top
2-Butanone	10	10	U	10	U	1			_	1	t								1	<u> </u>	†
1,1,1-Trichloroethane	10	10	Ū	10	U	i		-	 		1	1		<u> </u>			1				\top
Carbon Tetrachloride	10	10	Ū	10	Ū						\top									<u> </u>	
Bromodichloromethane	10	10	lu	10	U					1				-	\vdash				 		1
1,2-Dichloropropane	10	10	U	10	Ü				Г		 					1			 		\top
cis-1,3-Dichloropropene	10	10	Ιυ		Ū		t													l	1
Trichioroethene	10	10	Ü		Ū	 	t	 	┢		T	1			\vdash	 		 	1	†	
Dibromochloromethane	10	10	ū		Ū		\vdash	 	╁		\vdash		_	\vdash	\vdash				-	<u> </u>	1-
1,1,2-Trichloroethane	10	10	Ū		Ū		 	 	 	 	f				-	 	 	-	<u> </u>	 	+-
Benzene	10		Ū		Ū		 -	 	┢		1			 	┢╌	 	 		┢	 	+
trans-1,3-Dichloropropene	10	L	ΙŪ		υ	 	╁─╴	 	├	 	+			 	 	 	┼┈		┼	 	+
Bromoform	10		u		Ü	 	-	 			╁			 	┢		\vdash	 	╁──	†	1
4-Methyl-2-Pentanone	10	10	ŭ	10	Ŭ		├	 			╁┈				-	-	╁		<u> </u>	<u> </u>	╁
2-Hexanone	10	10	Ü		Ü	 	╁	<u> </u>		 	╂						╂		 	 	┼
Tetrachloroethene	10		Ü		Ü		-	 		} -	-	 		ļ		 	├—			ļ	+
1,1,2,2-Tetrachloroethane	10		U	10	U		├	 			╄			<u> </u>	_	<u> </u>	├		ļ	<u> </u>	+
Toluene	10		U	10	Ü	ļ	₩	 	 	<u> </u>	\vdash	 		 			├-	 	├	 	+
	10						├	ļ	 -		\vdash			<u> </u>	<u> </u>		├		\vdash		\vdash
Chlorobenzene			U		U		⊢	ļ	├—		\vdash										\vdash
Ethylbenzene	10		<u>u</u>		U	<u> </u>	<u> </u>	ļ	<u> </u>	ļ	 	 		ļ	<u> </u>		├	ļ	<u> </u>		—
Styrene	10	: =	<u>u</u>		Ü		 _		<u> </u>		 	ļļ		 			├	_	<u> </u>		+
Xylene (total)	10	10	Ü	10	U		<u> </u>	<u> </u>	L_	L				<u> </u>	<u> </u>		<u> </u>	L			

WHC-SD-EN-TI-238, Rev.

BLANK AND SAMPLE DATA SUMMARY

SDG: B09DJ2	REVIEWER: CENH				DAT	E: 1/21/9	4		PAGE_1	_OF_ <u>1</u> _
COMMENTS:	!									
SAMPLE ID	COMPOUND	RESU	JĽŤ	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLK	Methylene chloride	2		J		ug/L	10	20	B09DJ2	U
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WHC-SD-EN-TI-238, Rev. 0 DATA QUALIFICATION SUMMARY

SDG: B09DJ2	REVIEWER: CENH	DATE: 1/21/94	PAGE 1 OF 1
COMMENTS:			· · · · · · · · · · · · · · · · · · ·
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Methylene chloride	U .	B09DJ2	Lab Blank Contamination
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	-	-	

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	WELL AND SA	MPLE INFOR	MATION		SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	SEMIVOLATILES
199-F1-2	B09D66	w	10/29/93	NV	3-6, 3-7
199-F5-1	B09D70	w	10/28/93	v	3-8, 3-9
199-F5-4	B09D78	w	11/06/93	NV	3-10, 3-11
199-F5-6	B09D82 B09DG2 B09DH0	W W W	10/26/93 10/26/93 10/26/93	V V V	3-12, 3-13 3-12, 3-13 3-20, 3-21
199-F5-42	B09D86	w	10/30/93	NV	3-6, 3-7
199-F5-43A	B09D90	w	10/30/93	NV	3-6, 3-7
199-F5-44	B09D94	w	10/30/93	NV	3-6, 3-7
199-F5-45	B09D98	w	11/06/93	NV	3-10, 3-11
199-F5-46	B09DB2	w	11/06/93	NV	3-14, 3-15
199-F5-47	B09DB6 B09DG6 B09DH4	W W W	10/31/93 10/31/93 10/31/93	V V V	3-16, 3-17 3-16, 3-17 3-22, 3-23
199-F5-48	B09DC0	w	10/31/93	NV	3-16, 3-17
199-F6-1	B09DC4	w	10/30/93	NV	3-6, 3-7
199-F7-1	B09DC8	w	10/27/93	NV	3-18, 3-19
199-F7-2	B09DD2	w	10/30/93	NV	3-6, 3-7
199-F7-3	B09DD6	w	11/06/93	NV	3-14, 3-15
199-F8-2	B09DF0	w	10/31/93	NV	3-16, 3-17
199-F8-3	B09DF4	w	10/29/93	NV	3-6, 3-7
199-F8-4	B09DF8	w	10/29/93	NV	3-6, 3-7
EB-1	B09DH8	w	10/28/93	v	3-8, 3-9
EB-2	B09DJ2	w	11/03/93	V	3-24, 3-25

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3.0 SEMIVOLATILE DATA VALIDATION

3.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B09D70 B09DB6 B09DH4 B09D82 B09DH0 B09DJ2

3.2 HOLDING TIMES

Analytical holding times were assessed to ascertain whether the holding time requirements for semivolatile analyses were met by the laboratory. Westinghouse-Hanford protocols require that samples be extracted within seven days of collection and be analyzed within 40 days of extraction (WHC 1992a).

Holding time requirements were met for all samples.

3.3 INSTRUMENT CALIBRATION AND TUNING

3.3.1 GC/MS Tuning/Instrument Performance Check

Tuning is performed to ensure that mass resolution, and to some degree, sensitivity, of the GC/MS instrument has been established. When analyzing for semivolatile organic compounds, the GC/MS is tuned using DFTPP. The GC/MS must be tuned prior to the analysis of either standards or samples, and tuning must meet the criteria established by the analytical protocol. The specific criteria for acceptable GC/MS tuning using DFTPP are outlined in Westinghouse-Hanford procedures (WHC 1992a) and in CLP protocols (EPA 1988b and 1991).

As part of data validation, the original tuning data were checked for transcription and calculation errors to verify that tuning and performance criteria were met.

All tuning and performance criteria were met.

3.3.2 Initial Calibration

The GC/MS instrument is calibrated to ensure that it is capable of producing acceptable and reliable analytical data over a range of concentrations. The initial and continuing

calibrations are to be performed according to CLP protocols. An initial multipoint calibration is performed prior to sample analysis to establish the linearity range of the GC/MS instrument. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

Instrument response is established by the initial calibration when the RRFs for all target compounds are greater than or equal to 0.05 units. Linearity is established when the RSDs of the RRFs are less than or equal to 30 percent.

All initial calibration results were acceptable.

3.3.3 Continuing Calibration

The criteria for accepting the continuing calibration require that a standard be analyzed at least once per 12 hour period and that the RRFs of all target compounds be greater than or equal to 0.05 units. In addition, the percent difference of these RRFs must be less than or equal to 25 percent of the average RRFs calculated for the associated initial calibration.

All continuing calibration results were acceptable.

3.4 BLANKS

Method blank and field blank analyses are performed to determine the extent of laboratory or field contamination of samples. No contaminants should be present in the blanks. Analytical results for analytes present in any sample at less than 5 times the concentration of that analyte found in associated blanks should be qualified as non-detects; in the case of certain common laboratory contaminants, results less than 10 times the concentrations of that analyte in the associated blanks are qualified as non-detects.

All blank results were acceptable.

3.5 ACCURACY

Accuracy was assessed by evaluating the recoveries of stable isotopically labeled surrogate compounds added to all samples and blanks, and by the analysis of a representative sample which was spiked with a variety of organic compounds.

3.5.1 Matrix Spike Recovery

Matrix spike compounds are added to a sample which is representative of the sample delivery group. Matrix spike analyses are performed in duplicate using the six compounds

specified by CLP protocols. All recoveries for the compounds should be within the established QC limits (EPA 1988b). The matrix spike analyses estimate how much the analyses for the target compounds are interfered with, either positively or negatively, by the sample matrix. Because the matrix spike is performed using only one of the samples extracted within the SDG, these data alone cannot be used to evaluate the precision and accuracy of individual samples.

All matrix spike/matrix spike duplicate recovery results were acceptable.

3.5.2 Surrogate Recovery

Surrogate compound recoveries are calculated using analytical results from six stable, isotopically labeled surrogate compounds added to the sample prior to sample preparation and analysis. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. When recoveries for any two surrogate compounds are out of the control window, all positively identified target compound concentrations in samples associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J" and undetected compounds are qualified estimated below the detection limit and flagged "UJ".

All surrogate recovery results were acceptable.

3.6 PRECISION

The precision is expressed by the RPD between the recoveries of the matrix spike and the matrix spike duplicate analyses performed on a sample, and through a comparison of the results for field duplicate samples. Acceptable RPD control windows for matrix spike/matrix spike duplicate analyses have been established by the EPA CLP program.

Field precision is measured by analyzing duplicate samples taken in the field. No standards have been established for qualifying data based on RPD for duplicate field samples by CLP protocols. Westinghouse-Hanford procedures establish the following criteria for duplicate field sample analyses for organic compounds, based on criteria established for inorganic analyses for laboratory duplicates:

- 1. For compounds whose concentrations are greater than 5 times CRQL, RPDs, must be ±20 percent for aqueous samples and ±35 percent for soil samples.
- When one or more compounds are present at concentrations less than 5 times CRQL, the concentration difference must be ± CRQL for aqueous samples and ± 2xCRQL for soil samples.

All matrix spike/matrix spike duplicate RPD results were acceptable.

3.7 INTERNAL STANDARDS PERFORMANCE

Internal standard performance was assessed to determine whether abrupt changes in instrument response and sensitivity occurred that may have affected the reliability of the analytical data.—The response (area or height) of the internal standards must not vary by more than -50 percent or +100 percent from the response of the calibration standard that was used to calculate the upper and lower bounds. The upper and lower bounds define the range for acceptable internal standard response (area/height) for the sample analyses. In addition, retention times for the internal standard must not vary more than ±30 seconds from that of the associated calibration standard.

All internal standard results were acceptable.

3.8 COMPOUND IDENTIFICATION AND QUANTITATION

The identities of detected compounds were confirmed to investigate the possibility of false positives. The confirmation of compound identification during the QA review focuses on false positives because only mass spectra for positive identifications are submitted. However, target compounds that are reported as undetected are also evaluated to investigate the possibility of false negatives. Confirmation of possible false negatives is addressed by reviewing other factors relating to analytical sensitivity (e.g., detection limits, linearity, analytical recovery). Compound retention times and mass spectra must match those for the standard within set to tolerance limits (EPA 1988b).

3.8.1 Reported Results and Quantitation Limits

Compound quantitations and reported detection limits were recalculated and verified to ensure that they are accurate and are consistent with the internal standards and relative retention times specified by the CLP scope of work.

At concentrations below the CRQL, instrument precision becomes more variable as the IDL is approached. Therefore, the concentrations of any compound detected below the CRQL are qualified as estimates.

All compound identifications and quantitations have been verified as correct in the validated data.

3.8.2 Tentatively Identified Compounds

Chromatographic peaks may be present in an analysis that are not TCL analytes, surrogates, or internal standards and are considered TIC.

The validator verified that spectral library searches were conducted for at least 20 or less candidate TIC. All compounds, including common laboratory contaminants present in the blanks using Westinghouse-Hanford blank review criteria, were qualified as non-detects and flagged "U".

3.9 OVERALL ASSESSMENT AND SUMMARY

A thorough review of ongoing data acquisition and instrument performance criteria was made to assess overall GC/MS instrument performance. No changes in instrument performance were noted that would result in the degradation of data quality. No indications of unacceptable instrument performance (i.e., shifts in baseline stability, retention time shifts, extraneous peaks, sensitivity) were found during the quality assurance review.

In general, the semivolatile data presented in this report met the protocol-specified QA/QC requirements. All validated data are considered valid and usable within the standard error associated with the method.

Project: WESTINGHOUSE-HA	NFORD			1																
Laboratory: TIMA				1																
Case	SDG: I	B09D66	••	1																
Sample Number	·	B09D66		B09D86		B09D90		B09D94	1	9DC4		B09DD2	B09DF4		B09DF8		T			
Location		199-F1-	2	199-F5-	42.	199-F5-	43A	199-F5-4	4 19	9-F6-	1	199-F7-2	199-F8-	-3	199-F8	-4	Ι			
Remarks		NV		NV		NV		NV	N/	ĺ		NV	NV		NV					
Sample Date		10/29/93		10/30/93		10/30/93		10/30/93		/30/93		10/30/93	10/29/93		10/29/9					
Extraction Date		11/03/93	1	11/03/93	3	11/03/93		11/03/93		/03/93		11/03/93	11/03/93		11/03/9					
Analysis Date		11/16/93		11/16/93		11/16/93		11/16/93		/16/93		11/16/93	11/16/93		11/16/9					
Semivolatile Compound			Q		Q.		Q	Result C			Q	Result Q		Q		Q	Result	Q	Result	Q
Phenol	10	10	Ų	10	U		U	10 U		10	U	10 U	10	Ū	10		ļ	<u>.</u>	<u></u>	
bis(2-Chloroe(hyl)ether	10	10	U	10	U	10	υ	10 U		10	U	10 U	10	U	10					'
2-Chlorophenol	10	10	Ü	10	U	10	حا	10 U		10	U	10 U	10	U	10		1		<u> </u>	Д
1,3-Dichlorobenzene	10	10	U	10	U,	10	٥	10 U		10	Ų_	10 U	10	U	10			<u> </u>	 	'
1,4-Dichlorobenzene	10	10	U	10	U,	10	اد	10 U		10	U	10 U	10	U	10		<u> </u>	1.		
1,2-Dichlorobenzene	10	10	U	10	U	10	J	10 U		10	U	10 U	10	U	10			1_		
2-Methylphenol	10	10	U	10	U	10	٥	10 U		10	U	10 U	10	U	10	U		1.	<u> </u>	
2,2'-oxybis(1-Chloropropane)	10	10	U	10	U.	10	ב	10 U		10	U	10 U	10	U	10		1	1.	ļ	
4-Methylphenol	10	10	U	10	U	10	J	10 U		10	U	10 U	10	U	10	1 '	1	1	ļ	
N-Nitroso-Di-n-Propylamine	10	10	U	10	U	10	כ	10 U		10	U	10 U	10	U	10	U	1		<u> </u>	
Hexachloroethane	10	10	U	10	U	10	ح	10 U		10	U	10 U	10	U	10	U		<u> </u>		
Nitrobenzene	10	10	U	10	U		اح	10 U	ı L	10	U	10 U	10	U	10	<u>lu</u>			<u> </u>	
Isophorone	10	10	U	10	U.	10	ح	10 U	, _	10	U	10 U	10	U	10	U			<u> </u>	
2-Nitrophenol	10	10	U	10	U	1 .	5	10 L	1	10	U	10 U	10	U	10	U				
2,4-Dimethylphenol	10	10	U	10	u	1	U	10 L		10	U	10 U	10	u	10					
bis(2-Chloroethoxy)methane	10	10	U	10	U	10	U	10 U		10	U	10 U	10	U	10	1		Ц		
2,4-Dichlorophenol	10	10	U	10	U	1 -	5	10 U		10	Ü	10 Ü	10	u	10				<u> </u>	$oldsymbol{\perp}$
1,2,4-Trichlorobenzene	10	10	Ū	10	U	10	ادا	10 U		10	U	10 U	10	U	10				<u> </u>	
Naphthalene	10	10	U	10	U	10	اد	10 U		10	U	10 U	10	U	10					
4-Chloroaniline	10	10	U	10	U	10	U	10 U)	10	U	10 Ü	10	U	10		<u> </u>			
Hexachlorobu(adiene	10	10	U	10	U	1	J	10 U		10	U	10 U	10	U	10					\perp
4-Chloro-3-Methylphenol	10	10	U	10	U	1	5	10 U		10	U	10 U	10	U	10					$oldsymbol{oldsymbol{\perp}}$
2-Methylnaphthalene	10	10	U	10	U	10	ح	10 U	,	10	Ū	10 U	10	U	10					
Hexachlorocyclopentadiene	10	10	U	10	U		J	10 U	,	10	Ü	10 U	10	U	10					
2,4,6-Trichlorophenol	10	10	Ü	10	U	10	Ü	10 U	7	10	Ū	10 U	10	U	10	U				
2,4,5-Trichlorophenol	50	25	U	25	U	25	U	25 U	Л	25	Ū	25 U	25	Įυ.	25	υ				
2-Chloronaphthalene	10	10	Ū	10	Ū	10	U	10 U	丌厂	10	Ü	10 U	10	U	10	U				
2-Nitroaniline	50	25	U	25	Ū	25	J	25 U	,	25	U	25 U	25	U	25	U		Ι	Ī	\Box
Dimethylphthalate	10	10	U	10	Ū	10	U	10 U	 	10	Ü	10 U	10	U	10	Ü				
Acenaphthylene	10	10	U	10	U	10	U	10 U	,	10	U	10 U	10	U	10	U				
3-Nitroaniline	50	25	U	25	U	25	Ū	25 U	П	25	Ü	25 Ū	25	Ū	25	U				
Acenaphthene	10	10	Ū	10	U	10	Ū	10 U	丌	10	U	10 U	10	U	10	Ū		T	I	
2,4-Dinitrophenol	50	25	Ü	25	U	25	U	25 U	丌	25	Ü	25 U	25	Ū	25	U				T

B09DD2

199-F7-2

B09DF4

199-F8-3

B09DF8

199-F8-4

10 U

10 U

10 U

SDG: B09D66

10

10

10

10 U

10 U

10 U

10 U

10 U

10 U

B09D66

199-F1-2

Project: WESTINGHOUSE-HANFORD

Laboratory: TMA

Sample Number

Case

Location

LOCATION		199-11-	- 2	193-13.	-42	133-13-4	707	133-63-	44	1133-60-		133-F/-	_	-סד-ענון	·J	1133-66-	4	ľ	- 1		
Remarks		NV		NV		NV		NV		NV		NV		NV		NV					
Sample Date		10/29/93	3	10/30/93	3	10/30/93		10/30/93	3	10/30/93	j	10/30/93		10/29/93	3	10/29/93		1			
Extraction Date		11/03/93	3	11/03/93	3	11/03/93		11/03/93	}	11/03/93	}	11/03/93		11/03/93	3	11/03/93	:				
Analysis Date		11/16/93	3	11/16/93	3	11/16/93		11/16/93	3	11/16/93	}	11/16/93		11/16/93)	11/16/93				•	\neg
Semivolatile Compound	CROL	Result	Q	Result	Q	Result	Q	Result	a	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50	25	U	25	Ū	25	Ū	25	U	25	U	25	U	25	U	25	U				1-1
Dibenzofuran	10	10	U	10	U	10	U	10	U	10	Ū	10	Ü	10	U	10	U				
2,4-Dinitrotoiuene	10	10	U	10	U	10	Ü	10	Ü	10	U	10	Ų	10	Ü	10	Ü				\Box
2,6-Dinitrotoluene	10	10	U	10	U	10	Ū	10	U	10	U	10	Ū	10	U	10	U				1
Diethylphthalate	10	10	U	10	Ū	10	Ū	10	U	10	Ü	10	Ū	10	U	10	Ū	1			1
4-Chlorophenyl-phenylether	10	10	U	10	Ū	10	U	10	Ū	10	Ü	10	U	10	Ū	10	Ü				\Box
Fluorene	10	10	U	10	U	10	U		U	10	U		Ū	- 10	Ü	· T	Ü				\Box
4-Nitroaniline	50	25	U	25	U	25	Ü		Ü	25	U	25		25	Ü		U				
4,6-Dinitro-2-methylphenol	50	25	U	25	U	25	Ų		U	1	U	25	U	25	U	25	Ū				1
N-Nitrosodiphenylamine	10	10	U	10	U	10	Ū	10	U	10	U	10	U	. 10	Ü	10	U				\Box
4-Bromophenyl-phenylether	10	10	U	10	U		U	10	U	10	Ū	10	Ü	10	Ū	10	Ū				11
Hexachlorobenzene	10	10	Ü	10	U		U	10	U	10	Ū	10	Ü	10	U	10	Ū	1			1
Pentachiorophenol	50		U	25	U	25	U	25	U	25	Ū	25	Ū	- 25	Ū	25	Ū	<u> </u>			\Box
Phenanthrene	10	1	U	10	U	10	Ū	10	U	10	Ū	10	Ū	10	Ū	10	Ū				\Box
Anthracene	10	10	Ū	10	U	10	Ū	10	Ū	10	Ū	10	Ū	10	Ü	10	Ü				
Carbazole	10		U	10	U	10	Ū	10	U	10	Ü	10	U	10	U	10	Ü				\Box
Di-n-Butylphthalate	10	10	Ų	10	Ü	10	Ū	10	U	10	Ū	10	Ü	10	U	10	Ü				\Box
Fluoranthene	10	1	Ü	1 : -	U	10	U	10	Ū	10	Ü	10	U	- 10	Ū	10	U				\Box
Pyrene	10		U	10	U	- 10	Ū	10	U	10	Ū	10	Ü	10	U	10	Ü				\Box
Butylbenzylphthalate	10	10	Ü	10	U	10	Ü	10	Ü	10	U	10	U	10	Ü	10	U				\Box
3,3'-Dichlorobenzidine	10	10	U	10	U	10	C	10	U	10	U	10	U	10	U	10	U				\sqcap
Benzo(a)Anthracene	10		U	10	U	10	Ü	10	Ū	10	υ	10	U	10	υ	10	Ü				\Box
bis(2-Ethylhexyl)Phthalate	10	2	J		U	10	Ü	10	Ū		IJ	10	Ū	. 10	Ü	10	U				
Chrysene	10		U	10	U	10	U	10	Ū	10	IJ	10	U	10	U	10	U				\Box
DI-n-Octyl Phthalate	10		حا		U		Ū	10	U	10	Ū	10	Ū	10	U	10	U				\Box
Benzo(b)Fluoranthene	10	10	حا	10	Ü	10	U	10	U	10	J	10	Ū	10	U	10	Ū				+
Benzo(k)Fluoranthene	10	10	U	10	Ü	10	U	10	Ū	10	IJ	10	U	10	U	10	U				
Benzo(a)Pyrene	10	10	U	10	Ü	10	U]	10	U	10	IJ	10	Ū	10	U	10	Ü				\Box
Indono(1 2 2 od)Derone	40	4.0		4.5		7 2 12		- 4 4	174	·	4.4					1			\rightarrow		+

10 U

10 U

10 U

10 U

10 U

10 U

B09D94

199-F5-43A 199-F5-44 | 199-F6-1

B09DC4

10 U

10 U

10 U

10 U

10 U

10 U

10 U

10 U

10 U

B09D90

B09D86

199-F5-42

Indeno(1,2,3-cd)Pyrene

Dibenzo(a,h)Anthracene

Benzo(g,h,i)Perylene

Project: WESTINGHOUSE-HA	NEORE)		1																	
Laboratory: TMA				-																	
Case	SDG:	B09D70		1																	
Sample Number	1==:	B09D70		B09DH8		Τ		T				1				<u> </u>		Τ		Γ .	
Location		199-F5-		EB-1		 		 		 		 				-				<u> </u>	
Remarks		1		EB		1		 		İ				· · · · · · · · · · · · · · · · · · ·		ļ		<u> </u>			$\neg \neg$
Sample Date		10/28/93	3	10/28/93		 		†		 		 									$\neg \neg$
Extraction Date		11/03/93	3	11/03/93	1	t		 				<u> </u>				<u> </u>					\neg
Analysis Date	•	11/08/93		11/08/93		1		1	,			† · · · · ·									$\neg \neg$
Semivolatile Compound	CROL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U	10	U	1		1	1		1						1		Г		
bis(2-Chloroethyl)ether	10	10	U	10	Ū	l	1	1	T		 		1			· · ·	1		1		
2-Chlorophenol	10	10	U	10	Ū	1				1	1	<u> </u>					1		1		
1,3-Dichlorobenzene	10	10	U	10	Ū	1	1	T			1						1		1		\Box
1,4-Dichlorobenzene	10			10	Ū			1		1						<u> </u>	1				
1,2-Dichlorobenzene	10	10	U	10	Ü		1		1		1								1		
2-Methylphenol	10	10		10	U	1	1		1							<u> </u>	1	1			\Box
2,2'-oxybis(1-Chloropropane)	10				Ü		Т									:		1			
4-Methylphenol	10		U	10	U	1	T									ŀ					
N-Nitroso-Di-n-Propylamine	10				Ü		1														
Hexachloroethane	10	10	U	10	U		T				1						T				
Nitrobenzene	10	10	U	10	U			Ī				I						Ţ			
Isophorone	10		U	10	U		П		T		T]			Ι.	1			
2-Nitrophenol	10	10	U	10	Ú					}									T		
2,4-Dimethylphenol	10		U	10	U	l"	T														
bis(2-Chloroethoxy)methane	10	10	U	10	U		П				П						T				
2,4-Dichlorophenol	10	10	U	10	Ü		T	T							П		Ţ				
1,2,4-Trichlorobenzene	10	10	U	10	U	Ī	Т		T				П		1						
Naphthalene	10		U	10	U		T						T		1						T
4-Chloroaniline	10				U	1	T		T										Ī		
Hexachlorobutadiene	10				U		П				1	I	Τ				T		T		
4-Chloro-3-Methylphenol	10	10		1	U		Т		1	1							T	1	1		7
2-Methylnaphthalene	10	10	U		U		T		1				1								\top
Hexachlorocyclopentadiene	10	10	U	10	Ū		1											1			
2,4,6-Trichlorophenol	10	10	U		U	1	T		1				Г					1			
2,4,5-Trichlorophenol	50	25	Ü		U		1				1				1		1	1	\top		
2-Chloronaphthalene	10		U	10	U	1	1		1			1	T				1				
2-Nitroaniline	50	25	U	25	Ū		1				1						Ī				
Dimethylphthalate	10	10	Ū		U	I		Ī	1												
Acenaphthylene	10	10	U		Ū	1		Î	1		T				1]			
3-Nitroaniline	50	25	U	25	Ū	T	1		1						Ī		T		Τ]	T-1
Acenaphthene	10	10	U	10	U								Ī		-				Ī		
2,4-Dinitrophenol	50	25	Ü	25	U								Ĺ.								

Project: WESTINGHOUSE-HANFORD

Laboratory: TMA				1																	
Case	SDG:	B09D70		1									- !								
Sample Number		B09D70		B09DH8		}										Ĭ					
Location		199-F5	-1	EB-1		1		1				1						1	-	†	\neg
Remarks			•	EB		1				<u> </u>		1				<u> </u>		1			
Sample Date		10/28/93	3	10/28/93	}	1												1			
Extraction Date	-	11/03/93	3	11/03/93	}	1				,						 		 			
Analysis Date		11/08/93	3	11/08/93	3	<u> </u>				<u> </u>								 			\neg
Semivolatile Compound	CROL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	IQ
4-Nitrophenol	50	25	U	25	U	1					1	1	†				\vdash		\vdash		1
Dibenzofuran	10	10	Ü	10	Ū		1				1		<u> </u>				†		1-		+
2,4-Dinitrotoluene	10	10	Ü	10	U		1				1	Ì	<u> </u>		t	1	1	 	†		1
2,6-Dinitrotoluene	10	10	Ü	10	U		†		i	İ	\vdash	<u> </u>	<u> </u>			 	t	 	1		1-1
Diethylphthalate	10	10	Ū	10	Ū	1	1	1			1	t			\vdash	†	 	1	T		+
4-Chlorophenyl-phenylether	10	10	U	10	U	t	†		1	<u>† </u>		· · · ·			1	 	\vdash	 	1	-	+
Fluorene	10	10	Ü	10	Ū	1	†	†		 	1	†	<u> </u>		t	1	t	† · · · ·	1		1-1
4-Nitroaniline	50	25	Ū	25	U	 	†			<u> </u>		 			 	 	 	†	1		+ -
4,6-Dinitro-2-methylphenol	50	25	U	25	Ū	 	 		1		┢	† · · · · ·	-	i	 	 	╁	 	1	 	+
N-Nitrosodiphenylamine	10	10	Ü	10	Ū	†	t			l	 -	†	- -		†	†	✝	 	1		1-1
4-Bromophenyl-phenylether	10	10	U	10	U	 	1		_		\vdash		 		 	 	 	1	1		+-1
Hexachlorobenzene	10	10	Ū	10	Ū	1	 		 	 	 	 	<u> </u>		1	†	⇈	<u> </u>	 		1
Pentachlorophenol	50	25	lυ		Ū	1	┢	 	1				 		† —	 	╁	 	1		+
Phenanthrene	10	10	U		U	 	1	i	t		†	 		· · · · · ·		 	⇈	1	i		+
Anthracene	10	10	U	10	υ		1			ļ	 		<u> </u>	†			\vdash	 	1—		1
Carbazole	10	10	ΙÜ	10	Ū	1		· · · · · ·			 		 	†			 	 			+
Di-n-Butylphthalate	10	10	U	10	U		1		1		ı			!	一	1	†	1			+
Fluoranthene	10	10	U	10	U	<u> </u>	†			l	†		t –	 	İ	 	T	 	1		+
Pyrene	10	10	U	10	Ū	 	1				 	t	 		 	 	t	1	1	· · · · · · · · · · · · · · · · · · ·	
Butylbenzylphthalate	10	10	Ü	1	Ü	l	1				t	 	 		 	 	 		1		+
3,3'-Dichlorobenzidine	10	10	U		U		\vdash				\vdash			 	 	 	 	 	t	-	+
Benzo(a)Anthracene	10	10	Ü	10	Ū	<u> </u>	1				 	· · · ·			╁┈┈	 	一	 	 		+
bis(2-Ethylhexyl)Phthalate	10	47	_	 -	J	i	1		1		 	<u> </u>	<u> </u>		╅	 	[+
Chrysene	10	10	u		Ū		 		 -		 				t		 	 	 		+
Di-n-Octyl Phthalate	10		Ū		Ū	†					 -				╁		 	· · · · · · · · · · · · · · · · · · ·	 	<u> </u>	+
Benzo(b)Fluoranthene	10	10	Ū		Ū		 				╌				 		\vdash	<u> </u>	 		+
Benzo(k)Fluoranthene	10	10			Ū	l	 					 			 	 	十一	1			+
Benzo(a)Pyrene	10		Ū	1	Ū	 	_				 - 		<u> </u>	1		 	 	 	 	 	+
Indeno(1,2,3-cd)Pyrene	10		Ū		Ū		1		\vdash			····					\vdash	†			╁┈┤
Dibenzo(a,h)Anthracene	10		Ū		Ü		 		\vdash		\vdash			ļ ——		 	 	 	\vdash	 	+-+
Benzo(g,h,i)Perylene	10	10	L		Ü		 		\vdash		\vdash			ļ	-	 	\vdash	 	\vdash		┼┤
	<u></u> _				<u>-</u>	ı	<u>. </u>		اــــا		L	L	L	L:		<u> </u>	Ь	L	L	L	لسلا

Project: WESTINGHOUSE-HA	NEOBO	·		1																	
Laboratory: TMA																					
Case	ISDG I	B09D78		i																	
Sample Number	1000.	B09D78		B09D98		Γ		γ		Τ		·				l	-	1		1	
Location		199-F5-		199-F5-	45			 		 								-		 	
Remarks		NV	-	NV	70	1		}		†										 	
Sample Date	'	11/06/93		11/06/93				 				 		• • • • • • • • • • • • • • • • • • • •							
Extraction Date		11/11/93		11/11/93				<u> </u>		 						 				···	
Analysis Date		11/16/93		11/16/93				 		 		 		 							
Semivolatile Compound	CROL	Result			Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	ĪQ	Result	Q	Result	IQ
Phenot	10	10			Ū	1.15551	=	1::555::	╁		 - -	,	╁╤┈		╀╾	******	 -	1	+-		+=-
bis(2-Chloroethy!)ether	10	10			Ū		┼		+	 	H	 -	╁╌╴		 		 				1
2-Chlorophenol	10	10			Ū	Ì	1	<u> </u>	†	 	 		1		1		1		 		1
1,3-Dichlorobenzene	10	10		10	Ū	!	1	† · · · · ·	<u> </u>			 	t		1		†		1	1	†
1,4-Dichlorobenzene	10	10			Ū	†	1		1	!			1		T^-		1		1		1
1,2-Dichlorobenzene	10	10			Ū	† · · · · ·	 	1	\top	 	†	<u> </u>	†	<u> </u>	1	<u> </u>	1		1	<u> </u>	1
2-Methylphenol	10	10		10	Ū	 	1		1-	t	T				1	t	1				T
2,2'-oxybis(1-Chloropropane)	10	10	U		Ū		1		1	†	t		T^{-}				1	†	1		1
4-Methylphenol	10	10	U	10	U	1	1		1		 	-	 		1		†	<u> </u>			\top
N-Nitroso-Di-n-Propylamine	10	10	Ü	10	Ū		t		1			-			1	İ	<u> </u>				1
Hexacinioroethane	10	10	U	10	Ū	<u> </u>	1	1	\top		1				1		<u>† </u>	<u> </u>	T	T	1
Nitrobenzene	10	10	Ū	10	U				T		<u> </u>	-			1		1	1	1		
Isophorone	10	10	Ü	10	U		1		1	1		,	1	<u> </u>	1						T
2-Nitrophenol	10	10	U	10	U		1		T		 	 		<u> </u>	1				1		
2,4-Dimethylphenol	10	10	Ü	10	U		1		1	1					Т		1		Ì		
bis(2-Chloroethoxy)methane	10	10	U		U		1		1		1	1	1		1	i	1		1		
2,4-Dichlorophenol	10	10		10	U		1		T				Π		Т		1		1		T
1,2,4-Trichlorobenzene	10	10			U		Т		Т								T		Ī		
Naphthalene	10	10			Ü				T								F				
4-Chloroaniline	10	10	U	10	Ū										T		T		l		I
Hexachlorobutadiene	10	10			U]	Ī.,					T		<u> </u>				Γ
4-Chloro-3-Methylphenol	10	10	_		U		T		П		<u> </u>				Ī		I				
2-Methylnaphthalene	10	10		10	U						Ī						Ι	I			
Hexachlorocyclopentadiene	10	10	Ü	10	Ū																
2,4,6-Trichlorophenol	10	10			Ū				T	1		1					Ī				
2,4,5-Trichlorophenol	50	25			U		T				1	1					1	I	Π		Т
2-Chloronaphthalene	10	10		10	J		П										1		T		T
2-Nitroaniline	50	25		25	Ū												T				T^{-}
Dimethylphthalate	10	10		10	U		1											<u> </u>			$oxed{oxed{\mathbb{I}}}$
Acenaphthylene	10	10	U	10	Ū		T		T		Γ					Ī					\mathbf{I}^{-}
3-Nitroaniline	50		Ū	25	Ü	[1							l		I			\mathbf{I}_{-}
Acenaphthene	10	10			U								Ī		Π	1					
2,4-Dinitrophenol	50	25	U	25	Ū						Γ.		Ĭ								

Project: WESTINGHOUSE-HA	NFORE)]																	
Laboratory: TMA										•											
Case	SDG:	B09D78														1		•			
Sample Number		B09D78		B09D98		[Τ									T			
Location		199-F5-	·4	199-F5-	-45																
Remarks		NV		NV						1											
Sample Date		11/06/93		11/06/93												<u> </u>					
Extraction Date		11/11/93	3	11/11/93	3			T	T							<u> </u>					
Analysis Date		11/16/93		11/16/93													-				
Semivolatile Compound		Result	Q		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50		U		Ü		Т		П												
Dibenzofuran	10	10	L		U			I	П												I
2,4-Dinitrotoluene	10		Ü	10	Ü		T		Τ							<u> </u>	T		Π		\Box
2,6-Dinitrotoluene	10		U	10	U							Ī							T		\Box
Diethylphthalate	10	10	L	10	U												1				
4-Chlorophenyl-phenylether	10		U	10	U				Ι								Ī				
Fluorene	10		U	10	U				\mathbf{L}_{-}												
4-Nitroaniline	50		U	25	U		<u> </u>		<u> </u>				Ι		I						
4,6-Dinitro-2-methylphenol	50		U	25	U												L	I			
N-Nitrosodiphenylamine	10		U	10	1																
4-Bromophenyl-phenylether	10	10		10	U						l		I	I	I		I				
Hexachlorobenzene	10		Ū	10	U														П		\Box
Pentachlorophenol	50		U	25	U		Γ										I		П		
Phenanthrene	10		U	10	U	<u> </u>							Γ					,	П		
Anthracene	10		U	10	U				П							·			1		\Box
Carbazole	10		U	10	U	L_								ł					П		\Box
Di-n-Butylphthalate	10	, , , ,	U	10	Ü								<u> </u>								\Box
Fluoranthene	10		U	10	U								Ι	I		[Γ		Γ		\Box
Pyrene	10		U	10	U																
Butylbenzylphthalate	10		Ū		U										ł		Γ		T		
3,3'-Dichlorobenzidine	10		U	10	U		Ι	I	Ι												
Benzo(a)Anthracene	10		ح	10	U								I				T		Π		\Box
bis(2-Ethylhexyl)Phthalate	10		ے		U				I										Γ		
Chrysene	10		U	10	U		L														
Di-n-Octyl Phthalate	10		د	10	U												Γ				\Box
Benzo(b)Fluoranthene	10		د	10	U												1	I			T
Benzo(k)Fluoranthene	10		حا	10	U													I			
Benzo(a)Pyrene	10		U		U	<u>.</u>															\Box
Indeno(1,2,3-cd)Pyrene	10		U	10			1											1			\Box
Dibenzo(a,h)Anthracene	10	10	Ü	10	9				T								T	<u> </u>	\sqcap		\Box
Benzo(g,h,i)Perylene	10	10	Ū	10	U																

Project: WESTINGHOUSE-HA	WESTINGHOUSE-HANFORD																				
Laboratory: TMA				1																	
Case	SDG:	B09D82		1																	
Sample Number	·	B09D82		B09DG2	!				•			I									
Location		199-F5-	6	199-F5-	6									1						1	
Remarks	اربعب			DUP										i							
Sample Date		10/26/93	1	10/26/93	}				•								_				
Extraction Date		11/01/93	}	11/01/93													-				
Analysis Date		11/08/93	-	11/08/93	}																
Semivolatile Compound	CAQL	Result		Result		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenoi	10	10			U								Π								
bis(2-Chloroethyl)ether	10	10			U								Ι								
2-Chlorophenol	10		ט		U																
1,3-Dichlorobenzene	10		ے		Ū											l	Ι.				\coprod
1,4-Dichlorobenzene	10		ح		Ū		I		Ι				L	I	Π]			
1,2-Dichlorobenzene	10		حا		U														<u> </u>		
2-Methylphenol	10		حا		U				Ī											I	
2,2'-oxybis(1-Chloropropane)	10		U		U								I_{-}								
4-Methylphenol	10		ح	10													L		L		
N-Nitroso-Di-n-Propylamine	10		2		U			l													
Hexachioroethane	10		ט	,	U		<u> </u>														
Nitrobenzene	10		U		<u>u </u>		<u> </u>		丄		<u> </u>							L		1	$oxed{oxed}$
Isophorone	10		Ü		U									<u></u>	<u> </u>				<u> </u>		
2-Nitrophenol	10		U		U		<u> </u>		1	<u> </u>	<u> </u>				<u> </u>		<u> </u>	1		<u> </u>	
2,4-Dimethylphenol	10		U	10	U		1				<u> </u>				<u> </u>		1		1_	<u> </u>	
bis(2-Chloroethoxy)methane	10		٥		U		_		L		<u> </u>		1							ļ	
2,4-Dichlorophenol	10		Ü	10	u		<u> </u>		<u> </u>		$oxed{oxed}$		<u> </u>	<u> </u>	<u> </u>		↓	ļ			
1,2,4-Trichlorobenzene	10		حا		U		ļ	<u> </u>	1_	<u> </u>	L		<u> </u>	<u> </u>	<u> </u>	1	$oldsymbol{ol}}}}}}}}}}}}}}}}}$				
Naphthalene	10		رد		U	<u> </u>	<u> </u>		丄		<u> </u>		1	<u> </u>	1		ļ				
4-Chloroaniline	10		حا		U					<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>						
Hexachiorobutadiene	10		Ū		U		<u> </u>						<u> </u>	<u> </u>	<u> </u>		$oldsymbol{ol}}}}}}}}}}}}}}}}}$	ŀ			$oldsymbol{ol}}}}}}}}}}}}}}}}}}$
4-Chloro-3-Methylphenol	10		5	10	U		<u> </u>		丄		<u>L</u>		<u> </u>	<u> </u>	<u> </u>		↓		<u> </u>	<u> </u>	\perp
2-Methylnaphthalene	10		Ü	10	1		<u> </u>			<u> </u>	<u> </u>			<u> </u>	<u> </u>		<u> </u>	ļ	<u> </u>		
Hexachlorocyclopentadiene	10		۲	10	U		ļ.						<u> </u>	<u> </u>	<u> </u>		1_	ļ	1		\perp
2,4,6-Trichlorophenol	10		ט	10	U		<u> </u>				<u>L</u>		<u> </u>	<u> </u>	<u> </u>		1		1		4_
2,4,5-Trichlorophenol	50		٥	25	U		ļ			<u></u>			<u> </u>	<u> </u>	<u> </u>		1		1	<u> </u>	┸┚
2-Chloronaphthalene	10		υ	10	U	ļ	-	<u> </u>							<u> </u>		<u> </u>		ļ		
2-Nitroaniline	50		C		U	<u></u>	<u> </u>							1	<u> </u>						
Dimethylphthalate	10		Ü		U																
Acenaphthylene	10		٦		U											<u> </u>			<u> </u>		$oxed{oxed}$
3-Nitroaniline	50		U		U						<u> </u>						<u> </u>	ļ <u>.</u>	<u> </u>		$oxed{oxed}$
Acenaphthene	10		٦		٦												<u>L</u>		1		$oxed{igspace}$
2,4-Dinitrophenol	50	25	Ū	25	J																

Delem MESTINGUIS	at: WESTINGHOUSE-HANFORD								'													
	MEOHD	<u> </u>		1																		
	long	200000		4																		
Case	SDG:	B09D82				,							T				r '				,	
Sample Number		B09D82		B09DG2		ļ		<u> </u>		_			.		<u> </u>				ļ		<u> </u>	
Location		199-F5-	-6	199-F5-	· <u>6</u>	<u> </u>		<u> </u>		_			<u> </u>			-			ļ			
Remarks				DÜP		ļ		 		_			<u> </u>			<u> </u>	·					
Sample Date		10/26/93		10/26/93		<u> </u>		<u> </u>							<u> </u>		<u> </u>		ļ		ļ <u>.</u>	
Extraction Date		11/01/93		11/01/93		<u> </u>		<u> </u>					L		<u> </u>						<u> </u>	
Analysis Date	T===:	11/08/93		11/08/93		<u> </u>	12.	<u> </u>					<u> </u>									
Semivolatile Compound			Q		Q	Result	Q	Resi	JR (0	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50		U	25		ļ	┸	<u> </u>	\perp			<u> </u>		<u> </u>				<u> </u>		<u> </u>		
Dibenzofuran	10		U	10			<u> </u>	<u></u>	\perp	_								$oldsymbol{ol}}}}}}}}}}}}}}}}}$	ļ	<u> </u>		1
2,4-Dinitrotoluene	10	10	U	10	U	<u> </u>	ļ	<u> </u>				 		<u> </u>	<u> </u>	 		1		<u> </u>		$\perp \perp$
2,6-Dinitrotoluene	10	10	U		U		$oldsymbol{ol}}}}}}}}}}}}}}}}}$							<u></u>	<u> </u>]	<u>L</u> _	<u> </u>	
Diethylphthalate	10	10	U	1	U	 	<u> </u>					<u> </u>				<u>L</u>	ļ	1			ļ	┷┙
4-Chlorophenyl-phenylether	10	10	U		U			<u> </u>					<u> </u>	<u>L</u>		L		<u> </u>	<u> </u>	1		
Fluorene	10	10	U		U	<u> </u>		<u> </u>						<u> </u>				1		<u> </u>		
4-Nitroaniline	50	25	U		U																	
4,6-Dinitro-2-methylphenol	50	25	Ū	25	U	1												4				
N-Nitrosodiphenylamine	10	10	U	10	U															<u> </u>	I	$I_{-}I$
4-Bromophenyl-phenylether	10		U	10	U		\prod			1				Ι				Ι				\Box
Hexachlorobenzene	10		Ü	10	U		I										[,					
Pentachlorophenol	50		U		U												[.					
Phenanthrene	10		U		U		1_													<u> </u>		
Anthracene	10		U	10	U								L	<u> </u>				1				
Carbazole	10		U		U														i			
Di-n-Butylphthalate	10		Ų		U																	
Fluoranthene	10		U		U		T	T	T													
Pyrene	10		Ü	1	U																	
Butylbenzylphthalate	10	10	U	1	U			Г														
3,3'-Dichiorobenzidine	10		Ū	10	Ū		П	П				1	1			Ī		T				\Box
Benzo(a)Anthracene	10		U	10	Ū		Т	\Box	\neg							1		1				\Box
bis(2-Ethylhexyl)Phthalate	10	10	Ū	10	U		Τ	\vdash	$\neg \uparrow$							1		1		1	İ	1 1
Chrysene	10	10	Ū	10	Ū		T		\neg				1					1		1		\top
Di-n-Octyl Phthalate	10	10	Ū	10	Ū	 	\dagger	1	$\neg \uparrow$	\neg						1	1	1	ļ	1	†	\top
Benzo(b)Fluoranthene	10	10	U	10	Ū		\top							Ι			·	1			†	\top
Benzo(k)Fluoranthene	10	10	U	10	Ü	 	1	1	$\neg \uparrow$	\dashv		\vdash	1	T		†	i	†	† <u>-</u>	1	· · · · ·	\dagger
Benzo(a)Pyrene	10	10	U		Ū		1	Ì		\dashv					1	†		t	1	1		\top
Indeno(1,2,3-cd)Pyrene	10	10	U	10	Ū	†	T		十	一		 	l				†	1	1	T		$\dagger \Box$
Dibenzo(a,h)Anthracene	10	10	Ū		Ü		1			_		<u> </u>	t		1	 		1		<u> </u>		1
Benzo(g,h,i)Perylene	10	10	ΰ		Ū	1	1	†		_			· · · · · · · · · · · · · · · · · · ·	1	1	\vdash		1	 			\top
		·						٠						-		٠	l	-		-	·	

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<u> </u>				_																	
Project: WESTINGHOUSE-HA	NFORE)]																	
Laboratory: TMA				1																	
Case	SDG:	B09DB2		1																	
Sample Number		B09DB2		B09DD6																	
Location		199-F5	-46	199-F7-	.3							_			-						
Remarks		NV		NV																	
Sample Date		11/06/9		11/06/93						1											
Extraction Date		11/12/9		11/12/93	}																
Analysis Date		11/17/93		11/18/93]															
Semivolatile Compound	CRQL		Q			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10		U	10		·									1	1		1	T		\top
bis(2-Chloroethyl)ether	10	10	U	10			П										\top				1
2-Chlorophenol	10	10	U	10		T	П				T					1	T				\Box
1,3-Dichlorobenzene	10	10	U	10	U		1										1				\Box
1,4-Dichlorobenzene	10	10	Ü		Ü										1				1		\Box
1,2-Dichlorobenzene	10	10	U	10	U						1						1		1		
2-Methylphenol	10	10	U	10	U										1		\top	1	Ī		$\top 1$
2,2'-oxybis(1-Chloropropane)	10	10	U	10	U		\top		1						1		1				\Box
4-Methylphenol	10	10	Ü	10	U		1		1						1	<u> </u>	1	1			\Box
N-Nitroso-Di-n-Propylamine	10	10	Ù	10	U				1		1						1		1		\Box
Hexachloroethane	10	10	U	10	U		1	1	i –	1				 -	1	1	1	 	1	 	1-1
Nitrobenzene	10	10	U	10	U		\top	1	T		T				1		1	 			\top
Isophorone	10	10	Ü	10	U		П		1	1					1		1	· · ·			\top
2-Nitrophenol	10	10	U	10	U	1	1		1	· ·				·			1		1		\top
2,4-Dimethylphenol	10	10	U	10	U			1	1		1						1				\top
bis(2-Chloroethoxy)methane	10	10	U	10	Ü		\top		1	•					T		1	1	1		\top
2,4-Dichlorophenol	10	10	Ū	10	U		1	<u> </u>			ऻ						1		\top	†	\top
1,2,4-Trichlorobenzene	10	10	Ū	10	Ü		1			•		i			1		1	 			\top
Naphihalene	10	10	U	10	U				1	1					1	1	1	1	1		\top
4-Chloroaniline	10	10	U	10	Ū		1	1							1		1	1	1	1	1-1
Hexachlorobutadiene	10	10	Ü	10	Ū					<u> </u>	1			<u> </u>	1		 		1		\top
4-Chloro-3-Methylphenol	10	10	U	10	Ü		1	1	T	1				† 	1	i	1	1			\top
2-Methylnaphthalene	10	10	U	10	U	ĺ	1	1									T	1	1		
Hexachlorocyclopentadiene	10	10	U	10	υ		1		T	<u> </u>				-			1	 	1-		\top
2,4,6-Trichlorophenol	10	10	U	10	Ü	 	1		1	· .				 	 		+	1	1		\top
2,4,5-Trichlorophenol	50	25	U	25	U		 					·			†	<u> </u>	+-		1		+
2-Chloronaphthalene	10	10	U	10	U		1-		1						 	 	1-		†		+
2-Nitroaniline	50	25	U		U		†===	 		-			-	!	1	l	1-	 	1	· · · · · · · · · · · · · · · · · · ·	+
Dimethylphthalate	10	10	U		U		1	1						†	1	<u> </u>	† · · ·	1	1	<u> </u>	+
Acenaphthylene	10	10	Ū	10	Ū						†			<u> </u>	<u> </u>	ļ	t	1	1		+
3-Nitroaniline	50	25	Ū	25	U		T		†				_		1		_	 	T	Ì	+
Acenaphthene	10	10	Ū	10	Ü		1	t									t	<u> </u>	 	 	+-+
2,4-Dinitrophenol	50	25	Ū		Ū		†	<u> </u>							 		†	 	1	<u> </u>	+
_,			<u>, ~ _</u>				<u> </u>	<u> </u>	L		1			ļ	<u> </u>	l	1	1	 	L	

3-14

Laboratory: TMA																			1			NEORE	Project: WESTINGHOUSE-HA
Sample Number																			1			141 0112	
Location					•	i													1		B09DB2	SDG:	
Control 199-F5-46 199-F7-3	\neg					<u>'</u>			—		<u> </u>				Ţ		Ī	i	B09DD6	?	B09DB2	·	Sample Number
Sample Date			$\overline{}$	-	·				+-						† · · · · · · ·		<u> </u>	-3	199-F7-	-46	199-F5-		Location
Extraction Date			\dashv						+-						 	•	<u>† </u>		NV		NV	_	Remarks
Analysis Date		-									-							}	11/06/93	3	11/06/93		Sample Date
Semirophenol	\dashv								+-									3	11/12/93	3	11/12/93		Extraction Date
A-Nitrophenol 50 25 U 25 U U	\dashv	·							+									}	11/18/93	3	11/17/93		Analysis Date
A-Nitrophenol 50 25 U 25 U U U U U U U U U	का	Result	IQ	Result	IQ	Result	Q	esult	Re	Ta	Result	Q	Result	IQ	Result	Q	Result	Q	Result	Q	Result	CROL	Semivolatile Compound
2,4-Dinitrotoluene 10 10 U 10 U 2,6-Dinitrotoluene 10 10 U 10 U Diethylphthalate 10 10 U 10 U 4-Chlorophenyl-phenylether 10 10 U 10 U Fluorene 10 10 U 10 U 4-Nitroaniline 50 25 U 25 U 4,6-Dinitro-2-methylphenol 50 25 U 25 U N-Nitrosodiphenylamine 10 10 U 10 U 4-Bromophenyl-phenylether 10 10 U 10 U 4-Bromophenyl-phenylether 10 10 U 10 U 4-Bromophenyl-phenylether 10 10 U 10 U 4-Bromophenyl-phenylether 10 10 U 10 U Pentachlorobenzene 10 10 U 10 U Pentachlorobenzene 10 10 U 10 U Anthracen	+		1				-			1		\vdash		1-		1		Ū	25	U	25	50	4-Nitrophenol
2,6-Dinitrotoluene	\Box	· · · · · ·			 				1	1		1-		1		1		Ū	10	Ū	10	10	Dibenzofuran
Diethylphthalate	+	l	\Box						1	1						1		U	10	U			
4-Chlorophenyl-phenylether 10 10 U 10 U 10 U 10 U 10 U 10 U 10 U	1		\Box						1	T		1		1		1		U	10	U			
Fluorene	\forall								1	1				1	l	1	<u> </u>	U		Ū			
4-Nitroaniline 50 25 U 25 U 25 U 25 U 25 U 25 U 25 U 0	\Box				1				1	 				1				Ū		Ü			
4,6-Dinitro-2-methylphenol 50 25 U 25 U U Image: Control of the control of	\Box				1	-				1						1		Ü		U			
N-Nitrosodiphenylamine	\Box	<u> </u>	\Box							Ì								U		U			
4-Bromophenyl-phenylether 10 10 U 10 U 10 U Hexachlorobenzene 10 10 U 10 U 10 U In U In </th <th>1</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>1</th> <th>Î</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>U</th> <th></th> <th></th> <th></th>	1								1	Î										U			
Hexachlorobenzene	\Box	<u> </u>												Π				Ū	10	U			
Pentachlorophenol 50 25 U 25 U	1								\top	1							_			U			
Phenanthrene	T	·							1	1										U			La
Anthracene 10 10 U 10 U 10 U 10 U 10 U 10 U 10 U	\Box				İ					1] "				U			
Carbazole 10 10 U 10 U 10 U DI U U	\Box				1															_			
Di-n-Butylphthalate	1									1						Τ				1			
Fluoranthene	\Box									Т										U			
Pyrene	\sqcap																			U			
Butylbenzylphthalate 10 10 U 10 U 10 U 10 U 10 U 10 U 10 U	\Box	·					П			1										_			L
3,3'-Dichlorobenzidine 10 10 U 10 U 10 U 10 U 10 U 10 U 10 U	П	<u> </u>							1	1		1						U		U			
Benzo(a)Anthracene 10 10 U 10 U 10 U 10 U 10 U 10 U 10 U	1	·	\Box						\top														
bis(2-Ethylhexyl)Phthalate 10 10 10 U	\Box	ĺ																					
		·							T	T										U			
Chrysene 10 10 U 10 U	\prod	,																					
		·																		U			
Di-n-Octyl Phthalate 10 10 U 10 U	\Box								7	T										IJ			
Benzo(b)Fluoranthene 10 10 U 10 U	\Box																						
Benzo(k)Fluoranthene 10 10 U 10 U																							
Benzo(a)Pyrene 10 10 U 10 U	\Box																	U					
Indeno(1,2,3-cd)Pyrene 10 10 U 10 U	\Box		\Box						1														
Dibenzo(a,h)Anthracene 10 10 U 10 U	П								1	Τ										_			
Benzo(g,h,i)Perylene 10 10 U 10 U	П	i							1	I_{-}								U	10	U	10	10	Benzo(g,h,i)Perylene

Project: WESTINGHOUSE-HA	NEOFI)		1																	
Laboratory: TMA				1				į													
Case	SDG:	B09DB6		1				ļ													
Sample Number	·	B09DB6	i	B09DC0	1	B09DF0		B09DG6	<u></u>	1		ĺ		T ·		<u> </u>		1		Γ	
Location	-	199-F5-		199-F5-		199-F8-	2	199-F5-		 				 		l		ļ			$\neg \neg$
Remarks				NV		NV		DUP								<u> </u>					
Sample Date		10/31/93	}	10/31/93		10/31/93		10/31/93	3	T											
Extraction Date		11/05/93	}	11/05/93	1	11/05/93		11/05/93	3												一
Analysis Date		11/12/93	3	11/12/93		11/12/93		11/12/93	}												
Semivolatile Compound	CROIL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	Ü	10	Ū		Ū	10	U		1		1	1	1		1		1		\top
bis(2-Chloroethyl)ether	10	10	U	10	Ū	10	Ū	10	U	 -	1				1		1		 		\top
2-Chlorophenol	10	10	U	10	U	10	Ü	10	U								\top	1			\top
1,3-Dichlorobenzene	10	10	U	10	U	10	Ū	10	U	1	1		1				\top			· · · · · · · · · · · · · · · · · · ·	\top
1,4-Dichlorobenzene	10	10	Ū	10	U		Ū	10	Ū				1	T	1	<u> </u>	\top		1		\top
1,2-Dichlorobenzene	10	10	Ų	10	Ū		Ū	10	U	1			ſ		Τ	T	1	1	1	<u> </u>	
2-Methylphenol	10	10	U	10	U		U	10	U						П		1		Т	l	\top
2,2°-oxybis(1-Chloropropane)	10		U	10	U		U	10	U	1			1				\top				\Box
4-Methylphenol	10	10	U	10	Ū	10	Ū	10	U	1			1	1	1		1		1		7
N-Nitroso-Di-n-Propylamine	10	10	U	10	Ū	10	Ū	10	Ū		\top		1		Т		1				\top
Hexachloroethane	10	10	Ū	10	U		Ū	10	U		\top						1				\top
Nitrobenzene	10	10		10	U	,	Ū	10	Ū	1	1		1			1	1		1		\top
Isophorone	10	10	U		Ū		Ü	10	Ü												\Box
2-Nitrophenol	10	10	U	10	U		U	10	U		T						T				\Box
2,4-Dimethylphenol	10	10	U	10	U	1 15 1	U	10	U		T							Ì			\Box
bis(2-Chloroethoxy)methane	10	10		10	Ū		Ü	10	U								Т				\Box
2,4-Dichlorophenol	10	10		10	U		U	10	Ü		1						\top		\top		\Box
1,2,4-Trichiorobenzene	10	10	U	10	Ü	10	Ü	10	Ū		1						1	1	1		
Naphthalene	10	10	U	10	Ü		Ū	10	Ü		1		1				1		1		
4-Chloroanifine	10	10	Ū	10	Ū	10	Ū	10	Ū		Τ	,	1				1		1		
Hexachlorobutadiene	10	10	U	10	Ū	10	Ū	10	Ū	1	1		1	1	T	1	1	1	Т		
4-Chioro-3-Methylphenol	10	10		10	U	10	Ū	10	Ü	1	1		T	1	1		1	1	1		\top
2-Methylnaphthalene	10	10	Ū	10	٦	10	U	10	U								Т				\Box
Hexachlorocyclopentadiene	10		Ū	10	ט	10	U	10	U								1		1		\top
2,4,6-Trichlorophenol	10		U	10	Ü		Ū	10	U		Т						1		\top	T	\top
2,4,5-Trichlorophenol	50	25	Ü	25	U	25	Ū	25	U	1			1		†	1	\top	1	1		
2-Chioronaphthalene	10		U		C		U		U		1				1		1				\top
2-Nitroaniline	50	,	U	25	Ü	25	Ü	25	U				1				1		1	<u> </u>	
Dimethylphthalate	10		Ü	10	U	10	Ų	10	U			l		1		l	1	1	1		\top
Acenaphthylene	10	, , , ,	U	10	U		Ū	10	U	1	1					1	1	1			\Box
3-Nitroaniline	50	25	J	25	U	25	Ū	25	U		1		\Box		T		1		T		\top
Acenaphthene	10		Ū	1	U	10	U	10	U	T	1							•			\top
2,4-Dinitrophenol	50	25	Ū	25	U	25	U	25	U		1				П		1		\top		\top
					1		_		_												\pm

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Project: WESTINGHOUSE-HA	NFORE)																			
Laboratory: TMA	T===			_																	
Case	SDG:	B09DB6								<u>.</u>											
Sample Number		B09DB6		B09DC0		B09DF0		B09DG6		<u> </u>				<u> </u>			,	ļ			
Location		199-F5-	<u>-47</u>	199-F5-	-48	199-F8-	2	199-F5-	-47	<u> </u>										<u> </u>	. <u>.</u>
Remarks		<u> </u>		NV		NV		DUP		1								<u> </u>			
Sample Date		10/31/93		10/31/93		10/31/93		10/31/93													
Extraction Date		11/05/93		11/05/93		11/05/93		11/05/93													
Analysis Date		11/12/93	-	11/12/93		11/12/93		11/12/93		l								•		l	-
Semivolatile Compound	CROL		Q		Q				Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50		U	1	Ū	25		25	U										T.		Т
Dibenzofuran	10	10	Ū		U	10		10	U				1		Π		Т		1	Ī	
2,4-Dinitrotoluene	10	10	Ú	10	U	10	_	10	U				Π		Ī		1		Ī		
2,6-Dinitrotoluene	10	10	U	10	U	10		10	Ū	1					T		T	1		I	1
Diethylphthalate	10	10	U		Ū	10	U	10	U	1				Î			1		T	1	1
4-Chlorophenyl-phenylether	10	10	Ū	10	Ū	10	Ū	10	U		Г		1	1	1		1		1		\top
Fluorene	10	10	U	10	Ū	10	Ū	10	Ū	1	†	1			 		1	†	 		†
4-Nitroaniline	50	25	U	25	U	25	U	25	U	1	 		1		T		1		1	1	+-
4,6-Dinitro-2-methylphenol	50	25	Ü	25	U	25	U	25	U				T	 	1	<u> </u>	+	 	t		+
N-Nitrosodiphenylamine	10	10	U	10	ΙŪ	10	Ū	10	tu-	 	 	1	t		 	†	+	<u> </u>	1	t	+
4-Bromophenyl-phenylether	10	10	Ū	10	υ	10	Ü	10	U					 	 		\top	1	† 		+
Hexachlorobenzene	10	10	U	10	Ū	10	U	10	lυ	1	†		t	 	\vdash	 	+-	†	1	<u> </u>	+
Pentachiorophenol	50	25	Ū	25	U	25		25	ΙŪ	 			<u> </u>		1		1	 	\vdash		1-
Phenanthrene	10	10	Ū	10	U	10		10	lυ		-		†	<u> </u>	 	ļ	+	 	T	!	1
Anthracene	10	10	U	10	Ū	10	U	10	U	T	†		1	t	T		1		1	<u> </u>	+
Carbazole	10	10	U	10	Ü	10	U	10	ΙŪ	 	\vdash		t		 		+	· · · · · · · · · · · · · · · · · · ·	1		+
Di-n-Butylphthalate	10	10	Ū		U		Ü	10	lu	1	 		1		t		+-	<u> </u>	\vdash		+
Fluoranthene	10	10	U	10	Ü		Ū	10	ΙŪ			 	 	1	1		\top	 	1	-	+
Pyrene	10	10	ΙŪ	10	Ū		Ū	10	Ū		1		一		 	 	1-	-	1	 	·
Butylbenzylphthalate	10		ΙŪ		Ū		Ū	10	ΙŬ		 	 	t		<u> </u>	 	1-	 	T	 	"
3,3'-Dichlorobenzidine	10		Ū	10	Ū		Ū	10	Ŭ		H	l	T	 	-	 	+		+		+
Benzo(a)Anthracene	10		Ū	10	Ū		Ü	10	Ū	†	\vdash		t	 	 	 	+-		+-	 	+
bis(2-Ethylhexyf)Phthalate	10	10	Ū		Ü		Ü	10	lŭ	 	\vdash	 	\vdash	 	\vdash		+	 	╁╌	 	+
Chrysene	10	10	Ü		l ù	10	_	10	lŭ-	†	 	 	 		╁		+-	 	╁─		
DI-n-Octyl Phthalate	10	10	Ū	10	Ü		Ü	10	υ	 	\vdash	 	\vdash	 	-	 	+-	 	+	 	+-
Benzo(b)Fluoranthene	10	10	Ü	10	ij.	10		10	Ü			 	\vdash	 	\vdash	 	+	 	+-	 	+
Benzo(k)Fluoranthene	10	10	Ü	10	Ü		Ü	10	Ü	 			├	 	-	-	+	 	┼	 	+
Benzo(a)Pyrene	10	10	Ü	10	Ü	10	_	10	lŭ	 		 	\vdash	 	 		+-	 	╫	\vdash	+
Indeno(1,2,3-cd)Pyrene	10	10	Ü		Ü	10		10	Ü					 	\vdash		+-	 	+	 	+
Dibenzo(a,h)Anthracene	10	<u>. </u>	li -		ט	10		10	Ü	 	<u> </u>				├		+	 	+	 	+
Benzo(g,h,i)Perylene	10		li -	10		10		10	1 –			ļ	ļ				+	 	 	 	+-
Posterial Marie	טו	10	U	L	J	10	U	10	<u> </u>	L	Щ.	L	L	<u> </u>	l	L	1	1	<u> </u>	L	لــــــــــــــــــــــــــــــــــــــ

Sample Number	SDG: E																				
Sample Number																					
		309DC8		1.																	
		B09DC8				[[Γ.	
Location		199-F7-	1							<u></u>											
Remarks		NV		-		i			-	· 											
Sample Date		10/27/93	,																		
Extraction Date		11/03/93	,			<u> </u>		1													
Analysis Date		11/08/93	1					1													
Semivolatile Compound C	CROL		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10																			Τ.
bis(2-Chloroethyl)ether	10		حا							,											
2-Chlorophenol	10		כ																		\perp
1,3-Dichlorobenzene	10		כ																		
1,4-Dichlorobenzene	10		U																	<u> </u>	
1,2-Dichlorobenzene	10		U																		
2-Methylphenol	10		U																	<u> </u>	
2,2'-oxybis(1-Chloropropane)	10		حا			I	П		Ţ	,	I	I					$\prod_{i=1}^{n}$		I		L
4-Methylphenol	10		حا																		
N-Nitroso-Di-n-Propylamine	10		U		Ī.,															Γ,	
Hexachloroethane	10		Ü				Π												Ĺ	I	<u> </u>
Nitrobenzene	10		C																	l .	
Isophorone	10		U		I																
2-Nitrophenol	10		ح				Ι												<u> </u>		
2,4-Dimethylphenol	10		U																		
bis(2-Chloroethoxy)methane	10		ر																1	<u> </u>	
2,4-Dichlorophenol	10		ادا				L												L	I	<u> </u>
1,2,4-Trichlorobenzene	10		٦		l				<u> </u>			:					L	<u> </u>	1	<u> </u>	$oldsymbol{\perp}$
Naphthalene	10		J				<u> </u>				<u> </u>										
4-Chloroaniline	10		اد						<u></u>										<u> </u>		$oldsymbol{\perp}$
Hexachlorobutadiene	10		اد						<u> </u>		<u> </u>						<u> </u>			<u> </u>	
4-Chloro-3-Methylphenol	10		J																<u> </u>	<u> </u>	
2-Methylnaphthalene	10		U				1										1				
Hexachlorocyclopentadiene	10		U														<u> </u>				
2,4,6-Trichlorophenol	10		U				Ι											j			
2,4,5-Trichlorophenol	50		Ü														I		l		
2-Chloronaphthalene	10		U										•				T				
2-Nitroaniline	50		U																		\mathbf{L}^{-}
Dimethylphthalate	10		U]										
Acenaphthylene	10		Ū					l									Ι			L	
3-Nitroaniline	50		U				I												\Box		Γ
Acenaphthene	10	10									Ī										
2,4-Dinitrophenol	50	25	Ū					<u> </u>	1											l	

Project: WESTINGHOUSE-HA	ANFORD	 -		1																	
Laboratory: TMA				1												,					
Case	SDG:	B09DC8		1																	
Sample Number		B09DC8)	Ī																	
Location		199-F7-	-1																		
Remarks		NV				· · · · · · · · · · · · · · · · · · ·									•						
Sample Date		10/27/93	3			1		1													
Extraction Date		11/03/93	3			<u> </u>						i									
Analysis Date	***	11/08/93	3	1										1			-				
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Flesult	Q	Result	Q	Result	Q
4-Nitrophenol	50				1																
Dibenzofuran	10	10	Ū		1		1		Ī										\Box		
2,4-Dinitrotoluene	10	10	U		Γ																
2,6-Dinitrotoluene	10	10													<u> </u>						
Diethyiphthalate	10	10	Ü																L		$oldsymbol{ol}}}}}}}}}}}}}}}}}}}}$
4-Chiorophenyl-phenylether	10	10	U											<u> </u>	<u> </u>		<u> </u>		L		
Fluorene	10	10	U		Ι						<u>L</u>		<u> </u>	<u> </u>	<u> </u>	L			ᆫ		$oldsymbol{ol}}}}}}}}}}}}}}}}}}$
4-Nitroaniline	50	25	U					L	<u> </u>						乚			ļ	<u>L</u> _	<u> </u>	\perp
4,6-Dinitro-2-methylphenol	50	25	ļυ		<u> </u>	<u> </u>	<u> </u>			,				<u> </u>	↓		1		<u> </u>		
N-Nitrosodiphenylamine	10	10	U		<u> </u>		L		<u> </u>		L	L		<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>	$oldsymbol{ol}}}}}}}}}}}}}}}}}}$
4-Bromophenyl-phenylether	10	10	U		<u> </u>		<u>L</u>	<u></u>	<u> </u>				L	<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u>L</u>	<u> </u>	$oldsymbol{ol}}}}}}}}}}}}}}}}}}$
Hexachlorobenzene	10	10	U						<u> </u>					<u> </u>		ļ	<u> </u>	<u> </u>	L_	ļ <u>.</u>	$oldsymbol{ol}}}}}}}}}}}}}}}}}}$
Pentachlorophenol	50											<u> </u>	<u> </u>	<u> </u>	<u> </u>		乚	<u> </u>	匚	ļ	
Phenanthrene	10	10			<u> </u>				<u> </u>		<u> </u>		<u> </u>	<u> </u>	<u> </u>		<u> </u>	ļ	<u> </u>		1_1
Anthracene	10	10	U		L_				<u> </u>	<u> </u>	<u> </u>		<u>L_</u>	<u> </u>				<u> </u>	<u> </u>	.	\perp
Carbazole	10	10			L	<u> </u>	<u> </u>		<u> </u>					L	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	$\perp \!\!\! \perp$
Di-n-Butylphthalate	10	10	U						上				<u> </u>	<u> </u>	<u>↓</u>	<u> </u>	↓	<u> </u>	┖-	ļ	↓
Fluoranthene	10	10	_		<u> </u>										<u> </u>			<u> </u>	L		4
Pyrene	10	10	U		<u> </u>	l	<u> </u>		<u> </u>			ļ		<u> </u>	<u> </u>	<u> </u>	↓	<u> </u>	<u> </u>		
Butylbenzylphthalate	10	10		l	L_		<u> </u>	<u> </u>	L			<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	ᆜ		
3,3'-Dichlorobenzidine	10	10	U		L	<u> </u>		<u> </u>	<u> </u>				<u> </u>	<u></u>	<u> </u>	<u> </u>	↓	ļ	L		\perp
Benzo(a)Anthracene	10	10	-	<u> </u>	<u>L</u> _				<u>L</u>	<u> </u>	<u> </u>			<u> </u>	<u> </u>		1_		辶		4_4
bis(2-Ethylhexyl)Phthalate	10	2	J		L									L	<u> </u>	<u> </u>	 	ļ	<u> </u>		$\perp \perp \mid$
Chrysene	10	10			<u> </u>	<u> </u>	1_		<u>L</u>	<u> </u>			<u> </u>	<u> </u>	1		1	1	1	} _	لــــــــــــــــــــــــــــــــــــــ
Di-n-Octyl Phthalate	10	10	Ü			<u> </u>						ļ		<u> </u>	ـــــ			<u> </u>	<u> </u>		1
Benzo(b)Fluoranthene	10	10	_								<u> </u>			L	_		1_		<u> </u>	ļ	\perp
Benzo(k)Fluoranthene	10	10	U								1			<u></u>			1		乚		\perp
Benzo(a)Pyrene	10	10	U					<u> </u>													$oldsymbol{ol}}}}}}}}}}}}}}}}}}$
Indeno(1,2,3-cd)Pyrene	10	10												<u></u>		<u> </u>	_	<u> </u>			igspace
Dibenzo(a,h)Anthracene	10	10																	<u> </u>	ļ	ota
Benzo(g,h,i)Perylene	10	10	U											<u> </u>				<u> </u>		<u> </u>	┸

Project: WESTINGHOUSE-HA	NEOBE			ו																	
Laboratory: Roy F. Weston		<u> </u>		1				•													
	SDG:	ВОЭОНО		1																	
Sample Number	1000.	B09DH0	<u> </u>	 		Γ		<u>T </u>		Γ	-	T		<u></u>		F		1			$\overline{}$
Location		199-F5-		†		1		-			-					 				 	
Remarks		SPLIT	_	1		 		 				<u> </u>				 				 -	
Sample Date		10/26/93	_	<u> </u>		 		 		 		 				 				 	\dashv
Extraction Date		11/01/93		 		 		 		 		 		 		 					\dashv
Analysis Date		11/03/93						<u> </u>	-	 		 		ł		 				 	\dashv
Semivolatile Compound	CROL	Result		Result	Q	Result	Q	Regult	Q	Result	Ω	Result	Q	Result	Q	Result	Q	Result	IQ	Result	ত
Phenoi	10	10		1	一	1	╫		╁╾		┞═╌	1			╁═╌		 	1	╁═╌	1	╁═┤
bis(2-Chloroethyl)ether	10	10		İ	1		1		t		 	t		 	╁				t		+
2-Chlorophenol	10	10		1	1	 	1	 			Т			1	1		1		1		†
1,3-Dichlorobenzene	10	10	Ū		1	 	1	†	1		1	 	1-		1	 	†	 	1		+
1,4-Dichlorobenzene	10	10	Ū		1		1	t	1		 	 	 	<u> </u>	†		1	1	1	 	+-1
1,2-Dichlorobenzene	10	10			T	1	1	1	1	<u> </u>	t	 	\Box	1	1		1		1	 	⇈
2-Methylphenol	10	10	U				1		 								1		1		+
2,2'-corybis(1-Chloropropane)	10		U		 		 		╁		\vdash					 	1				1
4-Methylphenol	10	10	U	<u> </u>	1		t	1	1				†		†	<u> </u>	1		† –	<u> </u>	+
N-Nitroso-Di-n-Propylamine	10	10	Ū		1				1				t —	<u> </u>	†	 	\vdash		1		\Box
Hexachloroethane	10	10	Ū		1		1		T		1		<u> </u>			 			1		\vdash
Nitrobenzene	10	10	υ		1	<u> </u>	 		1				t-,		 		 		1		\Box
Isophorone	10	10	U	1	1		\vdash		1			<u> </u>	1		T	 	1		1		11
2-Nitrophenol	10		Ü	1					1	·					1				†		\Box
2,4-Dimethylphenol	10		U				1		1		Т								1		\Box
bis(2-Chloroethoxy)methane	10		Ų		T	1	1	1	1						1						\Box
2,4-Dichlorophenol	10		U				П		1		T					l	1	· · · · · ·	1		\vdash
1,2,4-Trichlorobenzene	10		U		1		П		1		1	1			1	<u> </u>	1	·	1		П
Naphthalene	10		Ü														i –				
4-Chloroaniline	10		U												T		Г				
Hexachlorobutadiene	10		U									1					1				
4-Chloro-3-Methylphenol	10		5						I								I		1		
2-Methylnaphthalene	10		5						\mathbf{L}_{-}										\mathbf{I}_{-}		\Box
Hexachlorocyclopentadiene	10		U																I		
2,4,6-Trichlorophenol	10		حا																1		П
2,4,5-Trichlorophenol	50		U				·		П												\sqcap
2-Chioronaphthalene	10		5		1								Г							· · ·	П
2-Nitroaniline	50		ט				П	Ī	<u> </u>												\Box
Dimethylphthalate	10		حا					<u> </u>	Ì												П
Acenaphthylene	10		Ų						1						T	l			T		
2,6-Dinitrotoluene	10	10						Ī	1												П
3-Nitroaniline	50		Ū		Π				1										1		
Acenaphthene	10	10	U					1	1							<u> </u>	Ι		1		\Box
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Project: WESTINGHOUSE-HA	NEODO		_	1																	
Laboratory: Roy F. Weston	ili Orto			1																	
	SDG:	309OH0		1																	
Sample Number		B09DH0)	†		Τ		<u> </u>		ī		T		T		Ι		T		T	
Location		199-F5-	6	1		 		1				<u> </u>								· · · · · · · ·	
Remarks	***	SPLIT								 						t		†		†	
Sample Date		10/26/93)	1						 		 		†		<u> </u>	 -	†···			
Extraction Date		11/01/93	·	1		†								1				 			
Analysis Date		11/03/93	_			<u> </u>						İ									
Semivolatile Compound	CROL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	TQ	Result	Q	Result	Q
2,4-Dinitrophenol	50		U	1			1					1		1		1			T		
4-Nitrophenol	50		U		Π		Ī						T			T			1	· · · · · · · · · · · · · · · · · · ·	
Dibenzofuran	10	10															1	1		Ì	
2,4-Dinitrotoluene	10	10							Γ		Γ	1					Ī	1	П		
Diethylphthalate	10	10					Π										T		Π		T
4-Chlorophenyl-phenylether	10	10			Π		Π										1		Π	l	T
Fluorene	10	10							L												
4-Nitroaniline	50		U						Γ				П								T
4,6-Dinitro-2-methylphenoi	50		b						Γ										T.,		
N-Nitrosodiphenylamine	10		ح																		
4-Bromophenyl-phenylether	10		ט														\Box		Γ		
Hexachiorobenzene	10		U																Г		
Pentachlorophenol	50	25	Ü				L				Ĺ										$\mathbf{I}_{}$
Phenanthrene	10	10	ادا				L														\mathbb{L}^{-1}
Anthracene	10		ادا			<u></u>	L_														
Carbazole	10		حا																<u> </u>		
DI-n-Butylphthalate	10		٦						<u> </u>				<u>L</u>				<u> </u>				
Fluoranthene	10		اد					<u> </u>	<u> </u>												
Pyrene	10	10					L										<u> </u>		L	•	\perp
Butylbenzylphthalate	10	10				<u></u>													L		
3,3'-Dichlorobenzicline	10	10			<u>L</u>				<u> </u>								<u> </u>				
Benzo(a)Anthracene	10	10		<u> </u>			<u> </u>		<u> </u>				<u> </u>				<u> </u>				
Chrysene	10		Ü				<u>L</u>				Ш										
bis(2-Ethylhexyl)Phthalate	10	10			<u> </u>						L			<u> </u>							
DI-n-Octyl Phthalate	10		٦																		
Benzo(b)Fluoranthene	10	10			L			<u> </u>	<u> </u>			<u></u>						<u> </u>			
Benzo(k)Fluoranthene	10		U																		
Benzo(a)Pyrene	10		U						L												
Indeno(1,2,3-cd)Pyrene	10	10					L														
Dibenzo(a,h)Anthracene	10		اد																		
Benzo(g,h,l)Perylene	10	10	U																		

Phenol 10 10 U	
Case	
Sample Number	
Remarks SPLIT Sample Date 10/31/93	
Remarks	
Sample Date 10/31/93	
Analysis Date	
Semivolatile Compound CRQL Result Q	
Phenol	
Dis(2-Chloroethyl)ether 10 10 U	sult ()
2-Chlorophenol 10 10 U	
1,3-Dichlorobenzene 10 10 U 1,4-Dichlorobenzene 10 10 U 1,2-Dichlorobenzene 10 10 U 2-Methylphenol 10 10 U 2,2'-oxybis(1-Chloropropane) 10 10 U 4-Methylphenol 10 10 U N-Nitroso-DI-n-Propylamine 10 10 U Hexachloroethane 10 10 U Nitrobenzene 10 10 U Isophorone 10 10 U 2-Nitrophenol 10 10 U 2,4-Dimethylphenol 10 10 U bis(2-Chloroethoxy)methane 10 10 U	
1,4-Dichlorobenzene 10 10 U 1,2-Dichlorobenzene 10 10 U 2-Methylphenol 10 10 U 2,2'-oxybis(1-Chloropropane)) 10 10 U 4-Methylphenol 10 10 U N-Nitroso-DI-n-Propylamine 10 10 U Hexachloroethane 10 10 U Nitrobenzene 10 10 U Isophorone 10 10 U 2-Nitrophenol 10 10 U 2,4-Dimethylphenol 10 10 U bis(2-Chloroethoxy)methane 10 10 U	
1,2-Dichlorobenzene 10 10 U	
2-Methylphenol 10 10 U 2,2'-oxybis(1-Chloropropane) 10 10 U 4-Methylphenol 10 10 U N-Nitroso-DI-n-Propylamine 10 10 U Hexachloroethane 10 10 U Nitrobenzene 10 10 U Isophorone 10 10 U 2-Nitrophenol 10 10 U 2,4-Dimethylphenol 10 10 U bis(2-Chloroethoxy)methane 10 10 U	
2,2'-oxybis(1-Chloropropane) 10 10 U 4-Methylphenol 10 10 U N-Nitroso-DI-n-Propylamine 10 10 U Hexachloroethane 10 10 U Nitrobenzene 10 10 U Isophorone 10 10 U 2-Nitrophenol 10 10 U 2,4-Dimethylphenol 10 10 U bis(2-Chloroethoxy)methane 10 10 U	
4-Methylphenol 10 10 U N-Nitroso-DI-n-Propylamine 10 10 U Hexachloroethane 10 10 U Nitrobenzene 10 10 U Isophorone 10 10 U 2-Nitrophenol 10 10 U 2,4-Dimethylphenol 10 10 U bis(2-Chloroethoxy)methane 10 10 U	
N-Nitroso-DI-n-Propylamine 10 10 U	
Hexachloroethane	
Nitrobenzene	
Isophorone	
2-Nitrophenol 10 10 U	
2,4-Dimethylphenol 10 10 U bis(2-Chloroethoxy)methane 10 10 U	
bis(2-Chloroethoxy)methane 10 10 U	
0.4 Dichlerenhand	
1,2,4-Trichlorobenzene 10 10 U	
Naphthalene 10 10 U	
4-Chloroaniline 10 10 U	
Hexachlorobutadiene 10 10 U	
4-Chloro-3-Methylphenol 10 10 U	
2-Methylnaphthalene 10 10 U	
Hexachlorocyclopentadiene 10 10 U	
2,4,6-Trichlorophenol 10 10 U	
2,4,5-Trichlorophenol 50 25 U	
2-Chloronaphthalene 10 10 U	
2-Nitroaniline 50 25 U	
Dimethylphthalate 10 10 U	
Acenaphthylene 10 10 U	
2,6-Dinitrotoluene 10 10 U	
3-Nitroaniline 50 25 U	
Acenaphthene 10 10 U	

Project: WESTINGHOUSE-HA	MEORI			1		•															
Laboratory: Roy F. Weston	1111 0112	<u></u> _		1														:			
Case	SDG:	B09DH4		1														İ	:		
Sample Number	1	B09DH4		 				Τ		Γ		Τ		I							
Location		199-F5-				 		 		 		1									$\neg \neg$
Remarks		SPLIT		1										 				1		******	\neg
Sample Date		10/31/93	1	1														1	-:		
Extraction Date		11/03/93	1	1		<u> </u>		1		<u> </u>											\neg
Analysis Date		11/08/93	1							<u> </u>				1		Î					
Semivolatile Compound	CROL			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	<u>a</u>	Result	Ta	Result	Q
2,4-Dinkrophenol	50		S	1					†												\Box
4-Nitrophenol	50		J						T T												
Dibenzofuran	10	10				· · · · · ·								I				I			
2,4-Dinitrotoluene	10	10																	L^-		
Diethylphthalate	10	10																			
4-Chlorophenyl-phenylether	10	10					П							,							
Fluorene	10		ט																		
4-Nitroanliine	50		2														Ι		Γ		\mathbf{I}
4,6-Dinitro-2-methylphenol	50	25	حا	Ι	Γ		П		I^{-}								T				\Box
N-Nitrosodiphenylamine	10		כ	I																	
4-Bromophenyl-phenylether	10		ے				1										<u> </u>				
Hexachlorobenzene	10		حا						L										L		
Pentachlorophenol	50		د	<u> </u>													<u>L</u>		L		
Phenanthrene	10		د	<u> </u>			<u> </u>			<u> </u>					L_		<u> </u>		L	<u></u>	
Anthracene	10		J								<u>L</u>				<u></u>		L		L_		
Carbazole	10		U								<u> </u>										
Di-n-Butylphthalate	10		U						<u> </u>									<u> </u>			
Fluoranthene	10		حا										匚	<u> </u>			<u> </u>	<u> </u>	L_		Ш
Pyrene	10		د				1						L						L_		
Butylbenzylphthalate	10		כ								L						L		L		
3,3'-Dichlorobenzidine	10		U																<u> </u>		
Benzo(a)Anthracene	10		Ü																		
Chrysene	10		J																		
bls(2-Ethylhexyl)Phthalate	10		כ																		
Di-n-Octyl Phthalate	10		د																		
Benzo(b)Fluoranthene	10		U																		
Benzo(k)Fluoranthene	10		U																		
Benzo(a)Pyrene	10	10																			
Indeno(1,2,3-cd)Pyrene	10	10																			
Dibenzo(a,h)Anthracene	10		U																		
Benzo(g,h,i)Perylene	10	10	J				1	1			I					1					
	-																				

Project: WESTINGHOUSE-HA	NFORD	<u> </u>		. ↓						•											
Laboratory: TMA	·																				
Case	SDG:	BO9OJ2		<u> </u>																	
Sample Number		B09DJ2	<u> </u>	<u> </u>		<u> </u>															
Location		EB-2						<u> </u>												<u> </u>	
Remarks		EB						•													
Sample Date		11/03/9						<u> </u>				<u> </u>									
Extraction Date		11/08/9				L															
Analysis Date		11/17/9																		1	
Semivolatile Compound			Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	a	Result	Q
Phenol	10	10			L		I				<u> </u>						1		Ι		T
bis(2-Chloroethyl)ether	10	10			I		Ι														\top
2-Chlorophenol	10	10					1		1								1		1		T
1,3-Dichlorobenzene	10								T		П	•					1		1		1
1,4-Dichlorobanzene	10	10	Įΰ		T	<u> </u>	Π	Ī									1		1		\top
1,2-Dichlorobenzene	10	10	Ü		1	<u> </u>	T_	ĵ				<u> </u>					Π	1	1	1	1
2-Methylphenol	10	10	U	1			1					†					1		1		1
2,2'-oxybis(1-Chloropropane)	10	10	U		1				1							—	†		1		1
4-Methylphenol	10	10	U		1		1	†	1	•			\vdash		ļ		\vdash	 	1		+-
N-Nitroso-Di-n-Propylamine	10	10	lυ		1		 		T		┢		!		$lue{}$		\vdash	 	†		+
Hexachloroethane	10	10	lυ		 		1		1		†	† · · · · · · · · · · · · · · · · · · ·			\vdash		 		 		+-
Nitrobenzene	10	10	U	†	1	 -	\vdash	†	†			 			 		 	· · · · · · · · · · · · · · · · · · ·	1		十一
Isophorone	10	10	Ü		1		一	†	1						†		一		†		
2-Nitrophenol	10	10	Ū		t		1-	 	1				†		\vdash		┢	 	1-		+
2,4-Dimethylphenol	10	10	lυ		†		1		T		1-	· · · · · · · · · · · · · · · · · · ·	\vdash		1		\vdash		t		+-
bis(2-Chloroethoxy)methane	10	10	lυ		T		1	†	1-		\vdash	<u> </u>			†	 	├		 		+-
2,4-Dichlorophenol	10	10	Ū		†	 	1	 	 			i e			1	 -	 		·		+-
1,2,4-Trichiorobenzene	10	10			1	 			1		1						┢		 		+
Naphthalene	10	10	U		†		t		t		 	 	-		\vdash		\vdash	 	 		+
4-Chloroaniline	10	10	Ū		1		\vdash		 -		\vdash		Н		┢		 	 	╁─		+-
Hexachlorobutadiene	10		Ū	··· ··	 		 		\vdash		\vdash		Н		 		╁	├──	 —		╫
4-Chloro-3-Methylphenol	10		Ū		†			 	1		 		 		┞─┤		\vdash	 	 	 	+-
2-Methylnaphthalene	10	10	Ū		 			 	 		┢	 	\vdash		ऻ─ऻ		 	 	╁─		+-
Hexachlorocyclopentadiene	10	10	Ü	 	\vdash		 -	 	t		 		 		╁─┤		+-		 		+
2,4,6-Trichlorophenol	10		Ū	 	\vdash		\vdash		\vdash				-		┥			 	 —	 	+
2,4,5-Trichlorophenol	50	25	Ü		 		 -		\vdash				\vdash			·	├	<u> </u>	 	ļ	+-
2-Chloronaphthalene	10	10	Ü		 		\vdash	 	┼				\vdash		1-		┼	 	├		+-
2-Nitroaniline	50	25	Ü				-	ļ <u>-</u>	├ ─		\vdash		\vdash		 	ļ <u></u>			 		+
Dimethylphthalate	10	10	Ü		\vdash		\vdash	 -	 -		 				├─┤		├		 		╁
Acenaphthylene	10	10	Ü	l			\vdash						\vdash		┥		├		-		┿
3-Nitroaniline	50	25	U	ļ	 		 		-				\vdash		┦		 		 		+
Acenaphthene	10	10	U		\vdash		 		1		-				 		-		 		₩
2,4-Dinitrophenol	50	25			ļ		⊢		1			<u> </u>					ļ		ļ		
z, a - Milliopheliol	50	20	U	l	<u> </u>		L		1						Ш		L		<u> </u>		$oldsymbol{\perp}$

Project: WESTINGHOUSE-HANFORD]												•						
Laboratory: TMA				1																	
Case	SDG:	B09DJ2		1					'							1					
Sample Number	·	B09DJ2	:			Ϊ								<u> </u>				T			$\overline{}$
Location EB-2		EB-2	-2						,					1	,	<u> </u>					
		EΒ									-										
Sample Date		11/03/93											-								
Extraction Date		11/08/93					-	1													
Analysis Date		11/17/93																			
Semivolatile Compound	CROL		Q	Result	Q	Result	Q	Result	a	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50	25	U		l		Ī	l													
Dibenzofuran	10	10																1			
2,4-Dinkrotoluene	10	10		I																	
2,6-Dinitrotoluene	10	10													I^-						
Diethylphthalate	10	10																			
4-Chlorophenyl-phenylether	10	10	1																		
Fluorene	10	10	U		Π		1														
4-Nitroaniline	50	25	U		1								Π						1		
4,6-Dinitro-2-methylphenol	50	25	Ū		Π				П			1							\sqcap		\top
N-Nitrosodiphenylamine	10	10	υ		П				1				\Box				1				
4-Bromophenyl-phenylether	10	10	U																1		
Hexachlorobenzene	10	10	U														1				
Pentachlorophenol	50	25	U]			П		П												
Phenanthrene	10	1			Γ												Γ		Ī		
Anthracene	10	10					Ι		Ι												
Carbazole	10	10							T										1		
Di-n-Butylphthalate	10	10																			
Fluoranthene	10		U					1													\Box
Pyrene	10	10							1												
Butylbenzylphthalate	10		U	Ĭ	П		Π	T				T					\Box				\Box
3,3'-Dichlorobenzidine	10	10	U		П				1												
Benzo(a)Anthracene	10		U																		
bis(2-Ethylhexyl)Phthalate	10	10	Ū														1	<u> </u>			
Chrysene	10	10	U			1	1	1	1										Г		
Di-n-Octyl Phthalate	10		Ū	<u> </u>	1		1		†	7							<u> </u>	i i			
Benzo(b)Fluoranthene	10	10	U				1	1													\Box
Benzo(k)Fluoranthene	10	10	U			1											1	1			$\dagger \exists$
Benzo(a)Pyrene	10	10	Ū	1		<u> </u>						i									
Indeno(1,2,3-cd)Pyrene	10	10	U	i					1								1		_	t	\top
Dibenzo(a,h)Anthracene	10		U	†					1						М						1
Benzo(g,h,i)Perylene	10		U		†		T	†	†								 	·	1		1
Net Transfer			<u> </u>				<u> </u>		<u>. </u>	L	L			L		L			Щ.	L	4

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	SAMPLE LOCATION INFORMATION				
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	PCB/PESTICIDES
199-F1-2	B09D66	w	10/29/93	NV	4-5
199-F5-1	B09D70	w	10/28/93	V	4-6
199-F5-4	B09D78	w	11/06/93	NV	4-7
199-F5-6	B09D82 B09DG2 B09DH0	w w w	10/26/93 10/26/93 10/26/93	V V V	4-8 4-8 4-12
199-F5-42	B09D86	w	10/30/93	NV	4-5
199-F5-43A	B09D90	w	10/30/93	NV	4-5
199-F5-44	B09D94	w	10/30/93	NV	4-5
199-F5-45	B09D98	w	11/06/93	NV	4-7
199-F5-46	B09DB2	w	11/06/93	NV	4-9
199-F5-47	B09DB6 B09DG6 B09DH4	W W	10/31/93 10/31/93 10/31/93	v v v	4-10 4-10 4-13
199-F5-48	B09DC0	w	10/31/93	NV	4-10
199-F6-1	B09DC4	w	10/30/93	NV	4-5
199-F7-1	B09DC8	w	10/27/93	NV	4-11
199-F7-2	B09DD2	w	10/30/93	NV	4-5
199-F7-3	B09DD6	w	11/06/93	NV	4-9
199-F8-2	B09DF0	w	10/31/93	NV	4-10
199-F8-3	B09DF4	w	10/29/93	NV	4-5
199-F8-4	B09DF8	w	10/29/93	NV	4-5
EB-1	B09DH8	w	10/28/93	v	4-6
EB-2	B09DJ2	w	11/03/93	v	4-14

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4.0 PESTICIDE AND PCB DATA VALIDATION

4.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation:

B09D70 B09DB6 B09DH4 B09D82 B09DH0 B09DJ2

4.2 HOLDING TIMES

Analytical holding times were assessed to ascertain whether the holding time requirements for pesticide/PCB analyses were met by the laboratory. Westinghouse-Hanford procedures require that samples be extracted within seven days of collection and analyzed within 40 days of extraction (WHC 1992a).

Holding time requirements were met for all samples.

4.3 INSTRUMENT PERFORMANCE AND CALIBRATIONS

Instrument performance was assessed to ensure that adequate chromatographic resolution and instrument sensitivity were achieved by the gas chromatographic system.

The specific criteria for acceptable instrument performance are outlined in EPA guidelines (EPA 1988b and 1991), including the evaluation and qualification procedures that may be performed on the analytical results.

Instrument calibration is performed to ensure that the chromatographic system is capable of producing acceptable and reliable analytical data. The initial and continuing calibrations are to be performed according to procedures established by CLP protocols. An initial calibration is performed prior to sample analysis to establish the linear range of the system, including a demonstration that all target compounds can be detected. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

During the quality assurance review, all indicators for acceptable instrument performance were verified. The criteria established by CLP protocols were met and the results are acceptable.

4.3.1 Initial Calibrations

The laboratory performed an initial multipoint calibration for all target compounds at the concentrations required by CLP protocols. The linearity of the initial calibration is established when the percent RSD or the calibration factors are less than or equal to 10 percent (or 15% for certain analytes).

All initial calibration results were acceptable.

4.3.2 Calibration Verification

The criteria for acceptable continuing calibrations requires that the calibration factors for all target compounds have a percent difference of less than or equal to 15 percent of the average calibration factor calculated for the associated initial calibration standard. The 15 percent difference value is required for results calculated using the chromatographic column which is used for quantitative purposes. In addition, the percent difference of the calibration factors calculated for the chromatographic column that is used for confirmation must be less than or equal to 20 percent.

Continuing calibration results exceeded QC limits for alpha-BHC, gamma-BHC (Lindane) and aldrin in sample number B09DJ2 in SDG No. B09DJ2. All associated results were qualified as estimates and flagged "J".

All other calibration verification results were acceptable.

4.4 BLANKS

Method blank and field blank analyses are performed to determine the extent of laboratory or field contamination of samples. No contaminants should be present in the blanks. Analytical results for analytes present in any sample at less than 5 times the concentration of that analyte found in the associated blanks should be qualified as non-detects.

There were no compounds of concern detected in the method or field blanks.

4.5 ACCURACY

Accuracy was assessed by evaluating the recoveries of the surrogate compounds and the matrix spike recoveries calculated for the sample analyses.

4.5.1 Matrix Spike Recovery

Matrix spike analyses are performed in duplicate using six compounds specified by CLP protocols. The recoveries for the six compounds must be within the acceptable quality control limits established by CLP protocols.

All matrix spike/matrix spike duplicate results were acceptable.

4.5.2 Surrogate Recovery

Surrogate compound recoveries are calculated using analytical results from two stable surrogate compounds added to the sample prior to sample preparation and analysis. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. When recoveries for either surrogate compound are out of the control window, all positively identified target compound concentrations in samples associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J" and undetected compounds are qualified estimated below the detection limit and flagged "UJ".

All surrogate recovery results were acceptable.

4.6 PRECISION

Precision is expressed by the RPD between the recoveries of the matrix spike and the matrix spike duplicate analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed by using unspiked duplicate analyses.

All matrix spike/matrix spike duplicate RPDs were acceptable.

4.7 COMPOUND IDENTIFICATION AND QUANTITATION

The data were evaluated to confirm the positive concentrations and to investigate the possibility of false negatives in all other data. Confirmation of possible false negatives is addressed by reviewing other factors relating to analytical sensitivity (e.g., detection limits, instrument linearity, analytical recovery). These factors were found to be in control, and the data are acceptable.

Compound quantitations and reported detection limits were recalculated and verified for a minimum of 20 percent of the samples in each case to ensure that they were accurate and are consistent with CLP requirements (EPA 1991). The reported detection limits must be in accordance with the CRQLs specified in the applicable CLP statement of work.

All validated compound identifications, CRQLs, and quantitation results were acceptable.

4.8 OVERALL ASSESSMENT AND SUMMARY

A thorough review of ongoing data acquisition and instrument performance criteria was made to assess overall GC/MS instrument performance. No changes in instrument performance were noted that would result in the degradation of data quality. No indications of unacceptable instrument performance (i.e., shifts in baseline stability, retention time shifts, extraneous peaks, or sensitivity) were found during the quality assurance review.

In general, the pesticide/PCB data presented in this report met the protocol-specified QA/QC requirements. Continuing calibration results exceeded QC limits for alpha-BHC, gamma-BHC (Lindane) and aldrin results in sample number B09DJ2 in SDG No. B09DJ2. All associated results were qualified as estimates and flagged "J". Estimated data are usable for limited purposes only. All other validated data are considered valid and usable within the standard error associated with the method.

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

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WHC-SD-EN-TI-238, Rev.

										i		•									
Project: WESTINGHOU	ISE-HA	NFORD]				' !		1											
Laboratory: TMA		-]						:									'		
Case	SDG:	B09D66]						:								1			
Sample Number		B09D66		B09D86		B09D90		B09D94		B09DC4	ļ	BO9DD2	?	B09DF4		B09DF8	}	T:			
Location		199-F1-	-2	199-F5-	42	199-F5	-43A	199-F5-	-44	199-F6	-1	199-F7-	.2	199-F8-	3	199-F8-	-4				
Remarks	,	NV		NV		NV		NV		NV		NV		NV		NV		Ĺ			
Sample Date		10/29/93	3	10/30/93	}	10/30/9	3	10/30/93	3	10/30/93	3	1(V30/93)	10/29/93		10/29/93	3	Ī			
Extraction Date		11/03/93		11/03/93		11/03/9	3	11/03/93	}	11/03/93	3	11/03/93	}	11/03/93		11/03/93	3	1			
Analysis Date		11/26/93	3	11/26/93	1	11/26/93		11/26/93	}	11/26/93	3	11/26/93	}	11/26/93	i	11/26/93	3	Î			
Pesticide/PCB	CROL		Q	Result	Q		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	a	Result	Q
alpha-BHC	0.05		U	0.05	U		U	0.05	U	0.05	U	0.05	Ū	0.05	U	0.05	U	1	Г		Т
beta-BHC	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	Ū	0.05	U	0.05	U		1		Г
delta-BHC	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	Ū	1	1		T
gamma-BHC (Lindane)	0.05	0.05	U	0.05	Ū	0.05	U	0.05	U	0.05	U	0.05	U	0.05	Ü	0.05	Ü	1	1		T
Heptachlor	0.05	0.05	U	0.05	U	1	Ü	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	1	1		Τ
Aldrin	0.05	0.05	U	0.05	U	0.05	Ü		U	0.05	U	0.05	Ū	0.05	U	0.05	U		1		T
Heptachlor epoxide	0.05		Ū	0.05	U	0.05	U	0.05	U	0.05	Ū	0.05	Ū	0.90		0.05	U		Ι		T
Endosulfan I	0.05	1	U	0.05	U	0.05	U	0.05	Ū	0.05	U	0.05	Ü	0.05	Ü	0.05	U	1	1		T
Dieldrin	0.10	0.10	U	0.10	U	0.10	U	0.10	Ū	0.10	U	0.10	U	0.10	Ū	0.10	Ū	1	T		Τ
4,4'-DDE	0.10	0.10	U	0.10		0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U		T^{T}		Т
Endrin	0.10	0.10	U	0.10	υ	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U		1		T
Endosultan It	0.10		U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U				T
4,4'-DDD	0.10		U	0.10	S	0.10	U		U	0.10	U	0.10	Ū	0.10	U	0.10	U				
Endosullan sullate	0.10		U	0.10			Ū	0.10	U	0.10	Ü		Ū		U	0.10	V				T
4,4'-DDT	0.10		U	0.10			U		Ü	1	U		U	0.10	Ü	0.10	U		Γ		Г
Methoxychior	0.50	0.50		0.50		1	U		U		U		U	0.50	U	0.50	Ū				Г
Endrin Ketone	0.10		U	0.10	U	0.10	U		U		U		U	0.10	U	0.10	U		T		Г
Endrin Aldehyde	0.10		U		J		U		U	0.10	U		U	1	U		U		Π		Г
alpha-Chiordane	0.05		U	0.05	5		U	0.05	U	0.05	U		U	0.05	Ü		U		Г		Г
gamma-Chlordane	0.05	0.05	دا	0.05	U	0.05	U	0.05	U	0.05	U	0.05	v	0.05	U	0.05	U	T	\Box		
Toxaphene	5.0	5.0	U	5.0	5	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U				İ
Aroclor-1016	1.0	1.0	U		Ų	1.0	Ü	1.0	U	1.0	U	1.0	Ü	1.0	U	1.0	U				Π
Aroclor-1221	2.0		د		U	2.0	บ	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1	\Box		Γ
Aroclor-1232	1.0	1.0	5	1.0	υ	1.0	Ū	1.0	Ū	1.0	U	1.0	U	1.0	U	1.0	U		T		
Aroclor-1242	1.0	1.0	Ū	1.0	U	1.0	U	1.0	Ų	1.0	U	1.0	U	1.0	U	1.0	U	1	1		Г
Aroclor-1248	1.0	1.0	U	1.0	U	1.0	U	1.0	Ü	1.0	Ü	1.0	Ü	1.0	U	1.0	υ		T		T
Arocior-1254	1.0	1.0	Ū	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	Ü	1.0	Ū	 	T		1
Aroclor-1260	1.0	1.0	U	1.0	Ū	1.0	U	1.0	U	1.0	Ū	1.0	U	1.0	Ū	1.0	U	1	1		

Project: WESTINGHOU	SE-HAI	NFORD		}																	
Laboratory: TMA	· · · · · · · · · · · · · · · · · · ·			1																	
Case	SDG:	B09D70		1																	
Sample Number		B09D70		B09DH8)]		Ĭ						<u> </u>		<u> </u>					
Location		199-F5-	1	EB-1		T															
Remarks				EB		t e														\Box	
Sample Date		10/28/93	,	10/28/93	}									1							
Extraction Date	•	11/03/93	3	11/03/93	}	1				T	_			1							
Analysis Date		11/26/93	3	11/26/93	}							·									
Pesticide/PCB	CROL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Flesult	Q	Result	Q
alpha-BHC	0.05	0.05	Ü	0.05		T					1					<u> </u>	П				
beta-BHC	0.05	0.05	U	0.05		I							Γ								
delta-BHC	0.05		U	0.05		<u> </u>					Γ					L					
gamma-BHC (Lindane)	0.05	1	U	0.05																	
Heptachlor	0.05		U	0.05																	
Aldrin	0.05		U	0.05													Γ_				I_{-}
Heptachlor epoxide	0.05	0.05	U	0.05	Ū				Γ		\Box						Ι		T		T
Endosulian I	0.05	0.05	Ū	0.05	U						Г				Ī						T
Dieldrin	0.10	0.10	U	0.10	U										1			,			
4,4'-DDE	0.10	0.10	U	0.10	U			_											1		
Endrin	0.10		U	0.10			Γ				П		Ι.								I
Endosulfan II	0.10		Ū	0.10					l''''					·			Τ		Ι		
4,4'-DDD	0.10	0.10	U	0.10																	
Endosulfan sulfate	0.10	0.10	U	0.10	U																
4,4'-DIOT	0.10	0.10	U	0.10															1		Ι
Methoxychlor	0.50		U	0.50							Ī		I				Γ_{-}		I		
Endrin Ketone	0.10		Ü	0.10		Ι											Γ_{-}				Ι
Endrin Aldehyde	0.10		U	0.10										I			Γ_{-}			<u> </u>	
alphaChiordane	0.05		U	0.05													L_{-}				
gamma-Chlordane	0.05	0.05	U	0.05											I				I		
Toxaphene	5.0	5.0	U	5.0	U																
Aroclor-1016	1.0	1.0	U	1.0			Г				П						Γ_{-}				
Arocior-1221	2.0	2.0	U	2.0	U						1		1								
Aroclor-1232	1.0	1.0	U	1.0	Ū					1											
Arocior-1242	1.0	1.0	Ü	1.0	Ū					Ī	Γ										
Aroclor-1248	1.0	1.0	Ū	1.0	Ū		Ī			Ī .	1		T		Π		Γ		T		
Aroclor-1254	1.0	1.0	Ü	1.0	U	[<u> </u>		I .								<u> </u>	
Aroclor-1260	1.0	1.0	U	1.0	Ū		ļ					I			T	<u> </u>			Ī		T

Project: WESTINGHOU	SE-HA	NFORD		7																	
Laboratory: TMA	:			1				•													
Case	SDG: I	E109D78		1																	
Sample Number		B09D78		B09D98					, -			T		Υ		Τ ` · · · ·		1			
Location		199-F5-	-4	199-F5-	45				-					 		┢		1			
Remarks		NV		NV				 	:					1		 	 -				
Sample Date		11/06/93)	11/06/93	}			<u> </u>		1	,			1				 		 	
Extraction Date	'	11/11/93	3	11/11/93		1		1	,			 		†	• • •			1			
Analysis Date		11/28/93	3	11/28/93	<u> </u>	Ì						<u> </u>						1			
Pesticide/PCB	CFIQL	Result	O			Result	Q	Recult	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05		U	0.05			_		† -								1		†		T
beta-BHC	0.05		U	0.05					Ī	Ī		1			<u> </u>			 	1		1
delta-BHC	0.05	1	U	0.05								<u> </u>		1	T	<u> </u>	T	1	T	<u> </u>	1
gamma-BHC (Lindane)	0.05	0.05	U	0.05	ح				1				Γ_	1	1		1		T		1
Heptachlor	0.05		U	0.05		I					1		T	1						<u> </u>	\top
Aldrin	0.05		U	0.05					1		П							<u> </u>	1		1
Heptachior epoxide	0.05	0.05	U	0.05					Î									†**********************			1
Endosulfan I	0.05		U	0.05										<u> </u>	T			1	\vdash		1
Dieldrin	0.10	0.10	U	0.10	U						1		Î			<u> </u>	1		1		1
4,4'-DDE	0.10	0.10	U	0.10	_								—				1		1		†
Endrin	0.10		U	0.10	J							1	1			<u> </u>			1		
Endosulfan #	0.10		U	0.10	_				-							<u> </u>					1
4,4'-DDD	0.10		5	0.10											1						1
Endosulfan sulfate	0.10		5		Ü										1				1		
4,4'-DOT	0.10		5		٥												Ι	i	1		
Methoxychlor	0.50	0.50	2	0.50															T		1
Endrin Ketone	0.10		ح	0.10									1								
Endrin Aldehyde	0.10		U	0.10	IJ																1
alpha-Chlordane	0.05	1	د	0.05									Г					İ			\vdash
gamma-Chlordane	0.05		2	0.05	U												1				
Toxaphene	5.0	5.0		5.0	U											·			†		
Aroclor-1016	1.0		U		U														t		
Aroclor-1221	2.0	2.0		2.0																	<u> </u>
Arocior-1232	1.0		U	1.0															†		
Aroclor-1242	1.0	1.0	C	1.0				-													
Aroclor-1248	1.0	1.0	Ü	1.0	U																
Aroclor-1254	1.0	1.0	U	1.0	U																\Box
Aroclor-1260	1.0	1.0	Ü	1.0	Ū																\vdash

Project: WESTINGHOU	SE-HA	NFORD		7																	
Laboratory: TMA		<u>-</u>	_	1		٠			1												
Case	SDG:	B09D82		1		i i			1												
Sample Number	•	B09D82		B09DG2	!				-	1		1		T		<u> </u>		<u> </u>			
Location		199-F5-	-6	199-F5-	6	ļ		<u> </u>		-				 		-				†	
Remarks		Ĭ		DUP				1				1								1	
Sample Date		10/26/93	3	10/26/93	ï	· · · · · ·								1		1					
Extraction Date		11/01/93		11/01/93)					<u> </u>		<u> </u>	-								
Analysis Date		11/16/93	3	11/16/93	}							1		İ							
Pesticide/PCB	CROL		Q		Q	Result	Q	Result	a	Result	a	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.05		0.05									T	1	1		1		1		\top
beta-BHC	0.05	0.05		0.05							Γ						Τ				T
delta-BHC	0.05	0.05		1	ح					L					1						1
gamma-BHC (Lindane)	0.05	0.05		1	ح																1
Heptachlor	0.05	0.05			حا		<u> </u>	J	$I_{}$												
Aldrin	0.05	0.05			J								1				I				T
Heptachlor epoxide	0.05	0.05			ح								Γ				1				T
Endosulfan I	0.05	0.05		1	וכ									I			T				
Dieldrin	0.10	0.10	_	0.10										I							
4,4'-DDE	0.10	0.10		0.10																	
Endrin	0.10	0.10		0.10					L												\Box
Endosultan II	0.10	0.10			J				$\Gamma_{}$										L		\Box
4,4'-DDD	0.10		U		U		<u> </u>		<u> </u>				l	l		f					T
Endosulfan sulfate	0.10	•	U	1	ح													<u> </u>			
4,4'-DOT	0.10		U	1	Ü		<u> </u>		<u> </u>		<u> </u>						J			Ī	
Methoxychlor	0.50		U		اد		<u> </u>		<u> </u>						L						
Endrin Ketone	0.10	• • • •	U		J				<u> </u>					<u> </u>							
Endrin Aldehyde	0.10		U		U				<u> </u>		1										
alpha-Chlordane	0.05		Ü	0.05					<u> </u>								<u> </u>				
gamma-Chlordane	0.05		U		U				<u> </u>		1	L	<u> </u>	<u> </u>		<u> </u>					
Toxaphene	5.0		U		U		<u> </u>	L	<u> </u>												
Aroclor-1016	1.0		U		U		<u> </u>		1_		1		<u> </u>		\Box						
Aroclor-1221	2.0		ט	2.0			_		<u> </u>		1_						<u> </u>				
Aroclor-1232	1.0		Ü	1.0			<u> </u>		<u> </u>			1					ļ				
Aroclor-1242	1.0		ט		U		<u> </u>		<u> </u>	ļ		<u> </u>									
Aroclor-1248	1.0		Ü	1.0			<u> </u>		<u> </u>	<u></u>	<u> </u>										
Aroclor-1254	1.0		U	1	U					L				<u> </u>							
Aroclor-1260	1.0	1.0	U	1.0	U																

Project: WESTINGHOU	SE-HA	NFORD	-]																	
Laboratory: TMA				1																	'
Case	SDG:	B09DB2		1																	
Sample Number		B09DB2	:	B09DD6				T		ľ											\neg
Location		199-F5-	46	199-F7-	3																
Remarks	•	NV		NV																	
Sample Date		11/06/93)	11/06/93				İ													\neg
Extraction Date		11/12/93)	11/12/93		1															
Analysis Date		11/29/93)	11/29/93		1															
Pesticide/PCB	CROL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.05	U	0.05	U											-					
beta-BHC	0.05	0.05		0.05			L	I	[Π		1				1		
delta-BHC	0.05	0.05		0.05											Ι		Π				
gamma-BHC (Lindane)	0.05	0.05		0.05												:	Π				
Heptachlor	0.05	0.05	U	0.05				l	l		Γ.		Π						I		
Aldrin	0.05	0.05	U	0.05																	
Heptachlor epoxide	0.05	0.05	U	0.05	Ü	[·															
Endosulfan I	0.05	0.05		0.05					ĺ				Π		1						\Box
Dieldrin	0.10	0.10	U	0.10	٦		Г				Γ		Т								П
4,4'-DDE	0.10	0.10	U	0.10	U		Γ										Г				П
Endrin	0.10	0.10	U	0.10	U																
Endosulian II	0.10	0.10	U	0.10	U																
4,4'-DOD	0.10		U	0.10																	
Endosulfan sulfate	0.10	0.10	U	0.10	U						Ī				1	:	1		1		
4,4'-DDT	0.10	0.10	U	0.10	U					<u> </u>		Ī	T		1				1		
Methoxychlor	0.50	0.50	U	0.50	Ų			T					Ī						Ī		
Endrin Ketone	0.10	0.10	U	0.10	Ü																
Endrin Aldehyde	0.10	0.10	Ū	0.10	Ü																
alpha-Chlordane	0.05	0.05	U	0.05	U				1		Γ	1	П		ı						
gamma-Chlordane	0.05	0.05	U	0.05	U						П	1	T								\Box
Toxaphene	5.0	5.0	U	5.0	Ū																П
Aroclor-1016	1.0	1.0	U	1.0					Г												
Aroclor-1221	2.0	2.0	Ü	2.0	U										Ī						П
Aroclor-1232	1.0		5		U						Π			I	Π		T				\Box
Aroclor-1242	1.0	1.0	U		U						T		П		T		T	".			\square
Aroclor-1248	1.0	1.0	U	1.0	U			Ī					П								
Arocior-1254	1.0	1.0	U	1.0	U			Ī			<u> </u>			<u> </u>							
Aroclor-1260	1.0	1.0	Ū	1.0	U							<u> </u>									

Project: WESTINGHOU	SE-HA	NFORD		1																	
Laboratory: TMA				1																	
Case	SDG:	B09DB6		1																	
Sample Number		B09DB6	i	B09DC0	1	B09DF0		B09DG6	3	T							~				
Location		199-F5-	47	199-F5-	48	199-F8-	2	199-F5-	47	1		1								1	
Remarks				NV		NV		DUP		1					-	·					
Sample Date		10/31/93	,	10/31/93)	10/31/93	,	10/31/93	}	Ť –						<u> </u>		1		T	
Extraction Date		11/05/93)	11/05/93	}	11/05/93)	11/05/93	}	i i					i	1		Ì			
Analysis Date		11/27/93	}	11/27/93	}	11/27/93)	11/27/93	}						-						
Pesticide/PCB	CROL		Q		Q	Result	a		Q	Result	Q	Result	Q	Result	C	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.05		0.05			ح	0.05											П		П
beta-BHC	0.05	0.05		0.05			5	0.05			П				Γ		T		Ī		П
delta-BHC	0.05	0.05		0.05		1	J	0.05			!										
gamma-BHC (Lindane)	0.05	0.05		0.05			حا	0.05													
Heptachlor	0.05	0.05		0.05	_		حا	0.05			Ι				Γ						
Aldrin	0.05	0.05			U		5	0.05			Π				Γ		Т	i			Т
Heptachlor epoxide	0.05	0.05			د		-	0.05							Γ	I				<u> </u>	
Endosulfan I	0.05	0.05		1	U	0.05	U	0.05							T -		T				
Dieldrin	0.10	0.10			5		ט	0.10			Γ										
4,4'-DDE	0.10	0.10		1	حا		וכ	0.10	U		П						i				
Endrin	0.10	0.10			اد		5	0.10									Π				
Endoculfan N	0.10	0.10		****	ے	1	ح	0.10			1		İ	l				l			\Box
4,4'-DDD	0.10		ح	4	ح		ح	0.10													
Endosulfan sulfate	0.10	7117	Ü		ح		حا		U						L^-						
4,4'-DDT	0.10		כ		ح		U	0.10	<u></u>							l	\mathbf{I}		L		
Methoxychlor	0.50	0.50	٥	0.50	ح	1	٥	0.50									I				\Box
Endrin Ketone	0.10		د		J		כ		J					I .			Ι			L	
Endrin Aldehyde	0.10		ح	4	U		5	0.10								<u> </u>					
alpha-Chlordane	0.05		د		U		U		ט								L				
gamma-Chlordane	0.05		اد		U		حا	0.05					L		L						
Toxaphene	5.0		U		U		اح		2										Ι		
Aroclor-1016	1.0		حا	***	U		U	***	حا		L										
Arocior-1221	2.0		J		U		U		٥												
Aroclor-1232	1.0	•••	ح		U		U		د												
Aroclor-1242	1.0		U		U		U		כ												
Aroclor-1248	1.0	1.0	حا	1.0	U	1.0	Ū	1.0	5						Γ		Ī		I^-		
Aroclor-1254	1.0	1.0	د	1.0	U		U	1	U		Ī —				Γ		Π				
Aroclor-1260	1.0	1.0	Ü	1.0	Ū	1.0	Ü	1.0	U	<u> </u>	I	[Γ	[T	T		

Project: WESTINGHOU Laboratory: TMA				1																	
Case	eng.	B09DC8		1																	
Sample Number	300.	B09DC8		 				т. — —		τ						1					
Location	·	199-F7-		 		 -	 :_			 				 -		 		 -			
Remarks		NV		}		 -	<u>-</u>	 		 				} -						}	
Sample Date		10/27/93		 		 	·	 -		 		<u> </u>		 		 		 -		 	
Extraction Date		11/03/93		∤		 				ļ		ļ		 		 		 -		 	
Analysis Date		11/26/93		}		 -		}		 		}		 		} ──∸─				 -	
Pesticide/PC8	~~~			Result	16	Result	Q	Result	Q	Result	Τō	Result	Q	Result	Q	Result	Ī	Result	Q	Result	Q
alpha-BHC	0.05	0.05		THESUR	۳-	THESUR	<u>~</u> _	1 VOSUIL	۲.	I LOSONE	14	HUSOFT	₩_	HOSUIL	₩.	TOOUR	╇	IIVeeri	Ι ΄	1. 103011	+-
beta-BHC	0.05	0.05		 	—-	 		 -	 	 	+	 	 —	 	╂	 -	╁	 _	 	 	+
delta-BHC	0.05		Ü	 	 -	<u> </u>	<u> </u>		├-	 	 -	 _		 		 	┢	 	\vdash	 	+
gamma-BHC (Lindane)	0.05	0.05		 	} -			 	⊢	 	╂		├ ─	 	╂	 	├		├	 	+
Heptachlor	0.05	0.05		 	 	 	-	 -	 	 	╂	├ ─-	╂	 -	├	 	├ -	 	-	ļ	+-
Aldrin	0.05		땁	 	├-	ļ	<u> </u>		 	 	 	_	!	 	╂	 	₩	 	┢	 	+-
Heptachlor epoxide			U	 	<u> </u>	}	-	 	 	 	₩		 -	 	╀	}	╀─		-	}	+-
Endosulfan I	0.05		U		⊢	ļ	├		—	├ ──	┼	 	├ ─	ļ <u> </u>	├ ~		⊢		╆	 	4-
Dieldrin	0.05		U-	├	ļ		_		┞	 	╂	<u> </u>	├ ─	 	 		 -		├	ļ	╂
4.4'-DDE	0.10		U	 	 			 -	1	! -	} -		}	 	├ -	 	}—		₩	}	-
4,4 -DDE Endrin				 _	 		-				₩		I —	 -	 		₩	 	₩	ļ	+-
	0.10		Ū	 	<u> </u>			ļ	-	ļ	⊢		↓	ļ <u></u>	├ -		├ —	 _	├	ļ	╁
Endosulfan II	0.10		Ū	 	 	 			! —	├ ──	╁—	}	 	 	ـ	 	▙	 -	} —	 	+-
4,4'-DDD	0.10		U	 	ļ			ļ	├ ─	↓		ļ <u>.</u>	├—	 	├		╄	├──	 —	ļ	4-
Endosullan sulfate	0.10		<u>u</u>	Ļ	!	ļ	ļ	ļ	<u> </u>	L	₩		 	<u> </u>	 		-	 -	┞	 	┰
4,4'-DDT	0.10		<u>u</u>	Ļ	 				⊢	<u> </u>	ļ		├ —	ļ	├	ļ <u>.</u>	 	 	├ ─	ļ	╆
Methoxychlor	0.50		U	 _		ļ			ļ	<u> </u>	⊢		ļ	<u> </u>	⊢ -		! —	 -	▙	 	╁
Endrin Ketone	0.10		Ü	ļ	 		<u> </u>		! —		┞		 		├		!	 -	!		+-
Endrin Aldehyde	0.10		Ü	 	<u> </u>				 —	ļ	├	ļ <u>.</u>	↓	ļ <u>.</u>	├	 _	₩.	 -	╄	 	—
alpha-Chlordane	0.05		U	<u> </u>	<u> </u>				<u> </u>	!	╀		├ ─	 	 -		├	<u> </u>	_	ļ	╂—
gamma-Chlordane	0.05	0.05			 				!	 _	├		! -	 	╄-	 	 	 _	!	<u> </u>	
Toxaphene	5.0	5.0	Ü	ļ	┞—		<u> </u>		! —	 	 	<u> </u>	ļ	L	 		∤		 	ļ. <u> </u>	4_
Aroclor-1016	1.0		U		 		L .		<u> </u>	ļ	↓		└ ─	 	├		ऻ—			ļ	╀
Aroclor-1221	2.0		U		 	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>		 	<u> </u>	 	 	 	}	 	1	}	╁
Aroclor-1232	1.0	1.0	Ū	ļ	<u> </u>		L	ļ	<u> </u>	ļ	<u> </u>		 		_		_		 		ــــــــــــــــــــــــــــــــــــــ
Aroclor-1242	1.0		U		L		Щ			Ļ	<u> </u>	Ļ	<u> </u>	ļ. <u></u>	 		!	Ļ	<u> </u>		+
Aroclor-1248	1.0		U		<u> </u>				_		!		<u> </u>		<u> </u>		1_		_		ـــــ
Aroclor-1254	1.0	1.0	U		L					<u></u>			<u> </u>				ļ	<u> </u>	<u> </u>	L	↓_
Aroclor-1260	1.0	1.0	U	!	l					İ	1	i		l	[ŀ	l	1		

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SDG:	BO9DHO		1																	
	B09DH0																			
	199-F5-	-6										,			1					
	SPLIT														Ī					
	10/26/93	3	1																	
	11/01/93	3																		
															l					
			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
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																	<u> </u>			$oldsymbol{ol}}}}}}}}}}}}}}}}}}}$
0.05																				$oxed{oxed}$
0.05															<u> </u>					$oxed{oxed}$
										1	l					<u></u>		<u> </u>		
0.05		1		I							l					L		L	<u> </u>	
0.05							l							L				<u> </u>		$oldsymbol{ol}}}}}}}}}}}}}}}}}}$
0.05										L								<u>i</u>	<u> </u>	
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0.10	0.10	U									I					I		1		
0.05			-							T		Ι	I	Ι						
0.05																				
5.0	5.0	U																ł		
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2.0															I					
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1.0	1.0	U	1			Γ								T						
1.0	1.0	U		1		Г	1		1	T		Ţ		Ì						
1.0	1.0	Ū				1	1			T-	1	П		Ī						
1.0				1		1		1	<u> </u>			1			T					
	CRQL 0.05 0.05 0.05 0.05 0.05 0.00 0.10 0.10	SDG: B09DH0 B09DH0 199-F5- SPLIT 10/26/93 11/01/93 11/04/93 11	SDG: B09DH0 199-F5-6 SPLIT 10/26/93 11/01/93 11/04/93 11/04/93 11/04/93 CRQL Result Q 0.05 0.05 U 0.05 0.05 U 0.05 0.05 U 0.05 0.05 U 0.05 0.05 U 0.05 0.05 U 0.05 0.05 U 0.05 0.05 U 0.05 0.05 U 0.10 0.10 U 0.10 0.10 U 0.10 0.10 U 0.10 0.10 U 0.10 0.10 U 0.10 0.10 U 0.10 0.10 U 0.10 0.10 U 0.10 0.10 U 0.10 0.10 U 0.10 0.10 U 0.50 0.50 U 0.50 0.50 U 0.50 0.50 U 0.05 0.05 U 0.05 0.05 U 0.05 0.05 U 0.10 0.10 U 0.10 0.10 U 0.10 0.10 U 0.10 0.10 U	SDG: B09DH0 199-F5-6 SPLIT 10/26/93 11/01/93 11/04/93 CRQL Result Q Result	SDG: B09DH0 B09DH0 199-F5-6 SPLIT 10/26/93 11/01/93 11/04/93 11/04/93 CRQL Result Q Result Q Q Q Q Q Q Q Q Q	SDG: B09DH0 199-F5-6 SPLIT 10/26/93 11/01/93 11/04/93	SDG: B09DH0 B09DH0 SPLIT	SDG: B09DH0	SDG: B09DH0 SPLIT	SDG: B09DH0 SP-F5-6 SPLIT SPLI	SDG: B09DH0 SDG: B09DH0	SDG: B09OH0 SD9OH	SDG: B09DH0 SPLIT SDG: B09DH0 SPLIT SDG: B09DH0 SPLIT SPLIT SDG: B09DH0 SPLIT SDG: B09DH0 SPLIT SDG: SPLIT SDG: B09DH0 SDG: SDG: SDG: SDG: SDG: SDG: SDG: SDG:	SDG: B09DH0 SPLIT	SDG: B09DH0 B09DH	SDG: B090H0 B090H	Sing Boson	SOG: B99DH0	SDG: B09DH0 SDG: B09DH0	SDG: B09DH0 SOGN SPLIT SOGN SPLIT SOGN SPLIT SOGN SPLIT SOGN SPLIT SOGN SPLIT SOGN SPLIT SOGN SPLIT SOGN SPLIT SOGN SPLIT SOGN

Project: WESTINGHOU Laboratory: Roy F. Wes				1										•							
		B09DH4		┨												•					
Sample Number	<u> </u>	B.09DH	1	 		T		T				Г						1		Γ''''	
Location		199-F5	<u> </u>	 		 		 		 	-	 		 -						├──	
Remarks		SPLIT		╂		· · · · · · · · · · · · · · · · · · ·		 		 		 		 				 		 -	_
Sample Date		10/31/9	3	 				 		 		 		 		 		 -		 	
Extraction Date		11/03/9		 		 		 		 		 				 -			-	 	
Analysis Date		11/05/9		 								 									
Pesticide/PCB	CAQL.	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	IQ	Recult	Q
alpha-BHC	0.05	0.05	U	 	 	t	t	† 	 	t — —	t		\vdash		t				1		†
beta-BHC	0.05	0.05	U	 	T		Г		1-				1		1			$\overline{}$	1		1
delta-BHC	0.05	0.05	ΙŪ						1		1.				1				1		丅
gamma-BHC (Lindane)	0.05	0.05					П	<u> </u>		1	T		Τ	T							T
Heptachlor	0.05	0.05	U	 			t					t	t	1	t		t		t		T
Aldrin	0.05	0.05	U			1		<u> </u>	1	1	1		1	1	1						1
Heptachlor epoxide	0.05	0.05	u	 	1		1	<u> </u>	1					<u> </u>	1			1	1		\top
Endosulfan I	0.05	0.05	Tu-	1	1		├					<u> </u>	1		1		1		†		1
Dieldrin	0.10	0.10	u			1		1		1						· · · · · · · · · · · · · · · · · · ·	1				1
4,4'-DDE	0.10	0.10	ū	 		1	1	1	1					1		·			1	· · · · · · · · · · · · · · · · · · ·	1
Endrin	0.10	0.10	TU					† <u>-</u>	1				T	1	1		1		1		1
Endosulfan N	0.10	0.10	U				T_	<u> </u>	 		T			1	1				1	<u> </u>	1
4,4'-DDD	0.10	0.10	U				T	1	1				T					<u> </u>			T
Endosulfan sulfate	0.10	0.10	U					<u> </u>	1				1		İΤ			1	1		†
4,4'-DDT	0.10	0.10	Ū.					ļ —					1						1		1
Methoxychlor	0.50	0.50	U.					1			1		\vdash		t —						1-
Endrin Ketone	0.10	0.10	U.				<u> </u>	 	1		T				1			· · · · · · · · · · · · · · · · · · ·	 		T
Endrin Aldehyde	0.10	0.10	U.				T-		1	<u> </u>			1		1				1		1
alpha-Chlordane	0.05	0.05	Ū.	<u> </u>		1	_	· · · · ·			1				Ι		1	<u> </u>	T		1
gamma-Chiordane	0.05	0.05	Ū.				<u> </u>		Ī								Г	<u> </u>	T		T
Toxaphene	5.0	5.0	Ū.	Ī	l									<u> </u>			1		T		1
Aroclor-1016	1.0				Γ				1	·	Γ_				 		Γ		1		\top
Aroclor-1221	2.0	2.0	U	1				<u> </u>		1	Ι		1		1				1		1
Aroclor-1232	1.0	1.0	U	<u> </u>															1		1
Aroclor~1242	1.0	1.0	U					<u> </u>	 	•	†				1				1		\top
Aroclor-1248	1.0		U				 	†	t —				t		1		t	 	!		T
Aroclor-1254	1.0	1.0	U		<u> </u>			 	1				\vdash				 	 			t
Aroclor-1260	1.0	1.0					 	 	†		<u> </u>				 		1	 	1		+

WHC-SD-EN-TI-23

Rev.

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PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

CALIBRATION DATA SUMMARY

SDG: B09DJ2	REVIEWER: SC		DATE: 1/	18/04	PAGE_1	OF 1
	REVIEWER. SC		DATE. 17		1 TAGE 1	<u> </u>
COMMENTS:						···.
CALIB. TYPE:	INITIAL CONTI	NUING	INSTRUM	ENT:	т	
CALIB. DATE	COMPOUND		RF	RPD	SAMPLES AFFECTED	QUALIFIER
11/30/93	alpha-BHC			41.0	B09DJ2	J
11/30/93	gamma-BHC (Lindane)			36.0	B09DJ2	1
11/30/93	Aldrin			28.0	B09DJ2	J
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				,		
		,				

WHC-SD-EN-TI-238, Rev. 0 DATA QUALIFICATION SUMMARY

	,		
SDG: B09DJ2	REVIEWER: SC	DATE: 1/18/94	PAGE_1_OF_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
alpha-BHC	1	B09DJ2	Calibration verification RPD outside of QC limits
gamma-BHC (Lindane)	J	B09DJ2	Calibration verification RPD outside of QC limits
Aldrin	J	B09DJ2	Calibration verification RPD outside of QC limits
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	u <u>.</u>		

	WELL AND SAI	MPLE INFORI	MATION		SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	INORGANICS
199-F1-2	B09D66	w	10/29/93	NV	5-14
	B09D67	w	10/29/93	NV	5-15
199-F5-1	B09D70	w	10/28/93	V	5-16
	B09D71	w_	10/28/93	V	5-20
199-F5-4	B09D78	w	11/06/93	NV	5-23
	B09D79	w	11/06/93	NV	5-24
199-F5-6	B09D82 B09D83 B09DG2 B09DG3 B09DH0 B09DH1	W W W W	10/26/93 10/26/93 10/26/93 10/26/93 10/26/93 10/26/93	V. V V V	5-25 5-30 5-25 5-30 5-47 5-47
199-F5-42	B09D86	w	10/30/93	NV	5-14
	B09D87	w	10/30/93	NV	5-15
199-F5-43A	B09D90	w	10/30/93	NV	5-14
	B09D91	w	10/30/93	NV	5-15
199-F5-44	B09D94	w	10/30/93	NV	5-14
	B09D95	w	10/30/93	NV	5-15
199-F5-45	B09D98	w	11/06/93	NV	5-23
	B09D99	w	11/06/93	NV	5-24
199-F5-46	B09DB2	w	11/06/93	NV	5-34
	B09DB3	w	11/06/93	NV	5-35
199-F5-47	B09DB6 B09DB7 B09DG6 B09DG7 B09DH4 B09DH5	W W W W	10/31/93 10/31/93 10/31/93 10/31/93 10/31/93 10/31/93	V V V V V	5-36 5-40 5-36 5-40 5-53 5-53
199-F5-48	B09DC0	w	10/31/93	NV	5-36
	B09DC1	w	10/31/93	NV	5-40
199-F6-1	B09DC4	w	10/30/93	NV	5-14
	B09DC5	W	- 10/30/93	NV	5-15
199-F7-1	B09DC8	w	10/27/93	NV	5-45
	B09DC9	w	10/27/93	NV	5-46
199-F7-2	B09DD2	W	10/30/93	NV	- 5-14
	B09DD3	W	10/30/93	NV	5-15

	WELL AND SAM	PLE INPORI	MATION		SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	INORGANICS
199-F7-3	B09DD6	w	11/06/93	NV	5-34
	B09DD7	w	11/06/93	NV	5-35
199-F8-2	B09DF0	W	10/31/93	NV	5-36
	B09DF1	W	10/31/93	NV	5-40
199-F8-3	B09DF4	w	10/29/93	NV	5-14
	B09DF5	w	10/29/93	NV	5-15
199-F8-4	B09DF8	w	· 10/29/93	NV	5-14
	B09DF9	w	10/29/93	NV	5-15
EB-1	B09DH8	w	10/28/93	v	5-16
	B09DH9	w	10/28/93	v	5-20
EB-2	B09DJ2	w	11/03/93	v	5-59
	B09DJ3	w	11/03/93	v	5-63

5.0 INORGANIC DATA VALIDATION

5.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and checked for completeness:

B09D70	B09D82	B09DB6	B09DH0	B09DJ2
B09D71	B09D83	B09DB7	B09DH4	BO9DJ3

5.2 HOLDING TIMES

Analytical holding times for ICP metals, GFAA metals and CVAA mercury analyses were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: samples must be analyzed within 28 days for mercury, 14 days for cyanide and within six months for all other metals.

All holding time requirements for all analytes in all data packages reviewed were met.

5.3 INSTRUMENT PERFORMANCE AND CALIBRATIONS

Performance of specific instrument quality assurance and quality control procedures, including deficiencies noted during the quality assurance review, are outlined below.

Three calibration standards and a blank were analyzed for arsenic, lead, selenium and thallium by GFAA. The correlation coefficient of a least squares linear regression met the requirements for calibration in all cases.

Up to five calibration standards and a blank were analyzed for mercury by CVAA. The correlation coefficient of a least squares linear regression met the requirements for calibration.

At least one standard and a blank were analyzed by ICP for all other elements.

The above calibrations were each immediately verified with an ICV standard and a calibration blank. The ICV was prepared from a source independent of the calibration standards, at a mid-calibration range concentration. The ICV percent recovery must fall within the control limits of 90 to 110 percent for metals analyzed by ICP and GFAA, and 80 to 120 percent for mercury. Calibration linearity near the detection limit was

verified with a standard prepared at a concentration near the CRDL.

The ICVs met the recommended control limits in all cases.

The calibrations were subsequently verified at regular intervals using a CCV standard. The control windows for percent recovery of CCV standards are the same as the ICV windows described above.

The CCVs met the recommended control limits in all cases.

All midpoint standard distillation for the cyanide analysis were performed.

5.3.1 ICP Calibration

An ICS was analyzed at the beginning and end of each ICP sample run to verify the laboratory interelement and background correction factors. Results for the ICS solution must fall within the control limit of ±20 percent of the true value. Arsenic, lead, selenium and thallium were analyzed using a Thermo-Jarrell Ash ICP61E. Under USEPA CLP protocol, this is acceptable provided the ICP is able to meet the required detection limits and the analytical run follows the USEPA CLP protocol for ICP analysis. Under the ICP method, an ICS is required for lead at a concentration of 1.0 mg/L. Refer to Table 2, page E-14, of the USEPA CLP ILM01.0.

The ICS has been analyzed at the proper frequency and all ICSAB solution percent recovery values fell within the control limits.

A five-fold serial dilution is required for all elements analyzed by ICP. The subsequent concentrations of the reanalysis are compared with the original analysis. If the analyte concentration is sufficiently high (a minimum factor of 50 above the IDL) then the serial dilution must agree within 10% of the original determination after correction for dilution.

5.3.2 Atomic Absorption Calibrations

Duplicate injections are required for all GFAA analyses. The duplicate injections establish the precision of the individual analytical determinations. For sample concentrations greater than the CRDL, duplicate injections must agree within ±20 percent RSD or CV. The AA calibration results are discussed further in Section 5.7 of this report.

5.4 BLANKS

5.4.1 Positive Blank Results

In the case of positive blank results, samples with digestate concentrations—(in-ug/L)—of less than five times (<5x) the highest amount found in any of the associated blanks have had their associated values qualified as non-detected and flagged "U". Samples with concentrations of greater than five times (>5x) the highest amount found in any of the associated blanks do not require qualification.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for aluminum:

- Sample number B09D70 in SDG No. B09D70.
- Sample number B09DH9 in SDG No. B09D71.
- -- -- Sample number B09D82 in SDG No. B09D82.
 - All samples in SDG No. B09D83.
 - Sample numbers B09DB6 and B09DG6 in SDG No. B09DB6.
 - Sample number B09DG7 in SDG No. B09DB7.
 - All samples in SDG No. B09DH0.
 - •__Sample_numbers B09DH4 and B09DH5 in SDG No. B09DH4.
 - Sample number B09DJ2 in SDG No. B09DJ2.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for antimony:

- Sample number B09D70 in SDG No. B09D70.
- Sample numbers B09D71 and B09DH9 in SDG No. B09D71.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for barium:

- Sample number B09D70 in SDG No. B09D70.
- Sample number B09DJ3 in SDG No. B09DJ3.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for beryllium:

- All samples in SDG No. B09D83.
- Sample number B09DB6 in SDG No. B09DB6.

- Sample number B09DJ2 in SDG No. B09DJ2.
- Sample number B09DJ3 in SDG No. B09DJ3.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for chromium:

- Sample numbers B09D70 and B09DH8 in SDG No. B09D70.
- Sample numbers B09D71 and B09DH9 in SDG No. B09D71.

Due to the presence of laboratory blank contamination, the following-samples were flagged "U" for copper:

- Sample numbers B09D70 and B09DH8 in SDG No. B09D70.
- Sample number B09DH9 in SDG No. B09D71.
- All samples in SDG No. B09D83.
- All samples in SDG No. B09DH0.
- Sample number B09DJ3 in SDG No. B09DJ3.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for iron:

- Sample number B09DH8 in SDG No. B09D70.
- Sample number B09D71 in SDG No. B09D71.
- All samples in SDG No. B09D83.
- Sample numbers B09DB6 and B09DG6 in SDG No. B09DB6.
- Sample numbers B09DB7 and B09DG7 in SDG No. B09DB7.
- Sample number B09DH1 in SDG No. B09DH0.
- Sample numbers B09DH4 and B09DH5 in SDG No. B09DH4.
- Sample number B09DJ2 in SDG No. B09DJ2.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for magnesium:

- Sample number B09DH9 in SDG No. B09D71.
- Sample number B09DJ3 in SDG No. B09DJ3.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for manganese:

Sample number B09D70 in SDG No. B09D70.

- Sample numbers B09D71 and B09DH9 in SDG No. B09D71.
- All samples in SDG No. B09D83.
- Sample number B09DB6 and B09DG6 in SDG No. B09DB6.
- Sample number B09DG7 in SDG No. B09DB7.
- All samples in SDG No. B09DH0.
- Sample number B09DJ2 in SDG No. B09DJ2.

-- - Due-to-the presence of laboratory blank contamination, the following samples were flagged "U" for nickel:

- Sample numbers B09D70 and B09DH8 in SDG No. B09D70.
- Sample number B09DH9 in SDG No. B09D71.
- All samples in SDG No. B09DH0.

Due to the presence of laboratory blank contamination, the following sample was flagged "U" for potassium:

• Sample number B09DH9 in SDG No. B09D71.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for thallium:

- All samples in SDG No. B09D82.
- All samples in SDG No. B09D83.
- Sample number B09DB6 in SDG No. B09DB6.
- Sample number B09DJ3 in SDG No. B09DJ3.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for vanadium:

● All samples in SDG No. B09DH0.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for zinc:

- Sample number B09D70 in SDG No. B09D70.
- Sample number B09DH9 in SDG No. B09D71.
- Sample number B09D83 in SDG No. B09D83.
- All samples in SDG No. B09DH0.
- Sample number B09DH4 and B09DH5 in SDG No. B09DH4.

• Sample number B09DJ3 in SDG No. B09DJ3.

All other laboratory blank results were acceptable.

5.4.2 Negative Blank Results

In the case of negative blank results, if the absolute value of any calibration blank exceeds the IDL, all non-detects are qualified as estimates and flagged "J", and all positive results within two times the absolute value of the blank result are qualified as estimates and flagged "J". In the case of preparation blanks, if the absolute value exceeds the CRDL, all non-detects are rejected and flagged "R" and all detected that are less than ten times the absolute value of the preparation blank result are qualified as estimates and flagged "J".

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for arsenic:

- All samples in SDG No. B09D82.
- All samples in SDG No. B09D83.
- All samples in SDG No. B09DH0.
- Sample numbers B09DH4 and B09DH5 in SDG No. B09DH4.

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for antimony:

• Sample numbers B09DH4 and B09DH5 in SDG No. B09DH4.

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for cadmium:

• Sample numbers B09DB7 and B09DG7 in SDG No. B09DB7.

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for copper:

Sample numbers B09DB6 and B09DG6 in SDG No. B09DB6.

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for lead:

• All samples in SDG No. B09DH0.

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for manganese:

Sample numbers B09DH4 and B09DH5 in SDG No. B09DH4.

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for silver:

Sample numbers B09DH4 and B09DH5 in SDG No. B09DH4.

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for thallium:

• Sample numbers B09DH4 and B09DH5 in SDG No. B09DH4.

Due to the presence of negative laboratory contamination, the following sample was flagged "J" for vanadium:

• Sample number B09DH5 in SDG No. B09DH4.

5.5 ACCURACY

5.5.1 Matrix Spike Recovery

Matrix spike analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike recoveries must generally fall within the range of 75 to 125 percent. Samples with a spike recovery of less than 30% and a sample value below the IDL were rejected and flagged "R". All other samples with a spike recovery outside the QC limits are qualified as estimates and flagged "J".

The matrix spike recovery fell outside the QC limits and the associated results flagged "J" for antimony in the following samples:

All samples in SDG No. B09DH0.

The matrix spike recovery fell outside the QC limits and the associated results flagged "J" for selenium in the following samples:

- ullet All samples in SDG No. B09DH0.
- Sample numbers B09DH4 and B09DH5 in SDG No. B09DH4.

The matrix spike recovery fell below the 30% QC recovery limit and the associated results flagged "R" for cyanide in the following samples:

Sample numbers B09D70 and B09DH8 in SDG No. B09D70.

All other matrix spike recovery results were acceptable.

5.5.2 Laboratory Control Sample Recovery

The LCS monitors the overall performance of the analysis, including the sample preparation. An LCS should be digested or distilled and analyzed with every group of samples which have been prepared together. The performance criteria for solid LCS samples are established through interlaboratory studies coordinated by a certifying agency (e.g., EPA or an independent commercial supplier).

One liquid LCS was digested and analyzed for each of the cases in this report that contained water samples. The results were compared against the control limit of 80-120% as required by the EPA CLP SOW 3/90 protocol and found to be acceptable.

All LCSW results were found to be acceptable.

5.6 PRECISION

5.6.1 Laboratory Duplicate Samples

The laboratory duplicate results measures the precision of the method by measuring a second aliquot of the sample that is treated the same way as the original. Samples whose precision fell outside the quality control requirements were flagged as estimates "J".

The laboratory duplicate results fell outside the QC limits and the associated results were flagged "J" for aluminum in the following samples:

- Sample number B09DJ2 in SDG No. B09DJ2.
- Sample number B09DJ3 in SDG No. B09DJ3.

The laboratory duplicate results fell outside the QC limits and the associated results were flagged "J" for cadmium in the following samples:

All samples in SDG No. B09DH0.

The laboratory duplicate results fell outside the QC limits and the associated results were flagged "J" for manganese in the following sample:

Sample number B09DJ3 in SDG No. B09DJ3.

The laboratory duplicate results fell outside the QC limits and the associated results were flagged "J" for zinc in the following samples:

Sample numbers B09DB7 and B09DG7 in SDG No. B09DB7.

All other laboratory duplicate recovery results were acceptable.

5.6.2 ICP Serial Dilution

The ICP serial dilution is used to determine whether significant physical or chemical interferences exist due to sample matrix. If sample concentration is ≥ 50 times the IDL for an analyte and the PD is outside the control limits the associated data must be qualified as estimates "J".

The ICP serial dilution results fell outside the QC limits and the associated results were flagged "J" for aluminum in the following sample:

Sample number B09DJ3 in SDG No. B09DJ3.

The ICP serial dilution results fell outside the QC limits and the associated results were flagged "J" for calcium in the following samples:

- All samples in SDG No. B09DH0.
- Sample numbers B09DH4 and B09DH5 in SDG No. B09DH4.

The ICP serial dilution results fell outside the QC limits and the associated results were flagged "J" for iron in the following samples:

• All samples in SDG No. B09DH0.

The ICP serial dilution results fell outside the QC limits and the associated results were flagged "J" for magnesium in the following samples:

- All samples in SDG No. B09DH0.
- Sample numbers B09DH4 and B09DH5 in SDG No. B09DH4.

The ICP serial dilution results fell outside the QC limits and the associated results were flagged "J" for sodium in the following samples:

- All samples in SDG No. B09DH0.
- Sample numbers B09DH4 and B09DH5 in SDG No. B09DH4.

All other ICP serial dilution results were acceptable.

5.6.3 Total and Dissolved Sample Analysis

Inorganics parameters included the analysis of the total as well as dissolved samples. Total samples include particulate and

dissolved fractions while dissolved samples are first filtered prior to preparation. The purpose of the analysis is to determine what metals are inherent in the particulate matter found in the aqueous sample.

Since Westinghouse Validation Guidelines do not address this issue, the total and dissolved samples are presented in the report, but no judgement on the data was made.

Below is a table of the total and dissolved samples which were validated.

<u>Total</u>	Dissolved
B09DH0	B09DH1
BO9DH8	BO9DH9
B09D82	B09D83
B09DG2	B09DG3
B09DB6	B09DB7
B09DG6	B09DG7
BO9DHO	B09DH1
B09DH4	B09DH5

No judgements were made on the samples as per Westinghouse-Hanford data validation guidelines.

5.7 FURNACE AA QUALITY CONTROL

The post-digestion analytical spike is analyzed to determine the extent of interference in the digestate matrix. When the results of the analytical spike analyses exceeds the control window of 85 to 115 percent recovery and the absorbance of the sample is greater than fifty percent of the analytical spike absorbance, then the sample must be reanalyzed using the MSA. The duplicate injections and the analytical spike recoveries establish the precision and accuracy of the individual GFAA determinations.

5.7.1 Duplicate Injections

Each furnace analysis requires a minimum of two injections (burns), except for full Method of Standard Addition (MSA). For concentrations greater than CRDL, the duplicate injection readings must agree within 20% relative standard deviation (RSD) or coefficient of variation (CV). If these requirements are not met, the analytical sample must be rerun once (i.e., two additional burns). If the readings are then still outside the QC limits, the result is qualified as an estimate and flagged "J".

All duplicate injection quality control requirements were met.

5.7.2 Analytical Spike Recoveries

For all samples whose analytical spike results are outside the 85 to 115 percent control limit, but whose absorbances are less than 50 percent of the analytical spike absorbance, the samples were flagged as estimates "J". In cases where the analytical spike recovery was 0.0 percent, the results were rejected and flagged "R".

The analytical spike recovery fell outside the established QC limits and the associated results flagged "J" for lead in the following sample:

Sample number B09DH5 in SDG No. B09DH4.

The analytical spike recovery fell outside the established QC limits and the associated results flagged "J" for selenium in the following samples:

- Sample numbers B09DH0 and B09DH1 in SDG No. B09DH0.
- Sample numbers B09DH4 and B09DH5 in SDG No. B09DH4.

All other analytical spike recovery results were acceptable.

5.7.3 Method of Standard Addition (MSA) Results

For all samples whose analytical spike results are outside the 85 to 115 percent control limit and whose absorbances are greater than 50 percent of the analytical spike absorbance an MSA is required. In cases where the MSA correlation coefficient was less than 0.995 the MSA analysis was repeated once. If the correlation coefficient was still less than 0.995, samples were flagged as estimates "J".

All MSA results were acceptable.

5.8 ANALYTE QUANTITATION AND DETECTION LIMITS

Twenty percent of sample results and reported detection limits were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors.

The reviewer verified that the results and detection limits fell within the linear range of the instrument.

5.9 OVERALL ASSESSMENT AND SUMMARY

All samples were analyzed and reported under the 1990 CLP protocol (EPA 1990). Several inconsistencies and deviations from the protocol were observed. They are as follows:

A CCV and CCB must be analyzed immediately after the ICV and ICB. ICAP and Mercury do not follow this protocol. For ICAP analysis a CCV and CCB were run after the initial interference checks and CRI. This is incorrect because the ICSA/AB and CRII are considered analytical samples and according to the CLP protocol a CCV and CCB must be run prior to any analytical samples. For mercury, the CCV and CCB were analyzed for after the first ten samples. Refer to Sections E-11 paragraph 5b and E-15 paragraph 4a of the EPA CLP SOW 3/90 protocol.

Internal Chains of Custody lacked sufficient information such as interdepartmental transfers, i.e., from the sample custodian to the technician responsible for sample preparation and the dates these transfers took place plus the EPA sample ID number. Without this information Internal Chains of Custody can not be verified as those belonging to samples in this report. Refer to Sections F-5, paragraph 1.5 and F-3, paragraph 1.4 of the EPA CLP SOW 3/90 protocol.

For samples analyzed by Roy F. Weston, incorrect ICP instrument detection limits (IDL's) are being used to report results down to the IDL. Two sets of IDL's (Form 10) are included in the data package for ICAP analysis, one for instrument IC1 and one for instrument IC3. According to the case narrative addendum, Roy F. Weston states that the highest IDL of the two instruments is used as per Exhibit E, Section V, Item 10 (pg. E-53) of the EPA Statement of Work for Inorganics Analysis, Document Number ILM01.0. This is correct only when two instruments are being used to determine sample results within a data package. However, in this data package Roy F. Weston used only one ICP instrument to determine the sample results and therefore it is that instrument's IDL's which should be used to calculate results. According to Form XIV information IC1 is the - instrument being used for analysis while the IDL's of IC3 are the ones reported on Forms 1-9. This can effect results flagged "U" or results which may be flagged "U" because of laboratory blank contamination.

All raw data associated with Roy F. Weston have not been labeled with the client (EPA) ID number. Results labeled with only the laboratory sample ID number is insufficient. Refer to Section B-10 of the EPA CLP SOW 3/90.

Except as noted in the preceding sections, all other validated data are usable for all purposes.

or results which may be flagged "U" because of laboratory blank contamination.

All raw data associated with Roy F. Weston have not been labeled with the client (EPA) ID number. Results labeled with only the laboratory sample ID number is insufficient. Refer to Section B-10 of the EPA CLP SOW 3/90.

Except as noted in the preceding sections, all other validated data are usable for all purposes.

Project: WESTING	IOUSE-I	IANFOR	D]												:					
Laboratory: TMA				1								!				'					
Case	SDG: B	09D66		1						,						•					
Sample Number	1	B09D66		B09D86		B09D90		B09D94		B09DC4		B09DD2)	BI09DF4	_	EI09DF8					
Location		199-F1-	-2	199-F5-	42	199-F5-	43A	199-F5-	44	199-F6-	1	199-F7-	2	199-F8-	3	199-F8-	4	1			
Remarks		NV		NV		NV		NV		NV	•	NV		NV		NV					
Sample Date		10/29/93	3	10/30/93	3	10/30/93	}	10/30/93	3	10/30/93	3	10/30/93	3	10/29/93	}	10/29/93	}				
Inorganic Analytes	CRDL.	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Flesult	Q	Flesult	Q	Result	Q	Result	Q
Aluminum	200	24.2		30.9		36.9		30.9		15.5	U	17.7		20.1		322					
Antimony	60	13.0	Γ	19.6	Γ	14.5		9.2	U	14.0		9.2	U	12.8		9.2	U		Π	<u> </u>	
Arsenic	10	12.1		2.1	Ū	2.1	U	2.1	U	2.1	U	5.9	Г	2.3		5.1					T
Barium	200	32.7	П	32.7	Г	28.6		20.4		24.5		25.9		129		40.9					
Berytlium	5	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	Ū	0.20	U	0.20	U		Π		
Cadmium	5	1.0	U	1.1	Г	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U				
Calcium	5000	36500		29400		28400		31600		30100		58700		143000		69500					
Chromium	10	4.1	U	8.4		10.9		21.0		11.8		14.3	Г	14.3		14.3			Ī		\top
Cobalt	50	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	V	3.0	Ū	3.0	U				
Copper	25	2.9	U	2.9	U	2.9	U	4.0		2.9	U	2.9	Ü	2.9	Ū	2.9	U		1		
Iron	100	32.1	Π	36.8		74.0		65.8		31.8		53.0		24.8		414			Π		T
Lead	3	2.9	U	2.9	U	2.9	Ū	2.9	U	2.9	U	2.9	Ū	2.9	U	2.9	Ü				
Magnesium	5000	11900	Π	5270	Γ	4240		5510		3990		17500	Γ	36300		17200					
Manganese	15	1.3	U	2.8		4.3		2.3		1.5		1.3	U	1.5		10.7					
Mercury	0.2	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	Ü	0.20	U	0.20	U				
Nickel	40	5.3	Γ	7.5		6.8		8.3		8.3	Π	15.1		4.5		4.2			Π		\top
Potassium	5000	4680		2300		1810		1870		2880		6730		8030		6170					
Selenium	5	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U				T
Silver	10	3.7	U	3.7	Ū	3.7	Ü	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U		1		
Sodium	5000	50700	1	2780		2820		4140		3730		52600		61800		47900		1			\top
Thallium	10	1.6	U	1.6	Ū	1.6	U	2.0		1.6	U	1.6	U	1.6	U	1.6	U				1
Vanadium	50	23.9		4.7		5.3		5.9		3.0		17.6		10.0		13.0					
Zinc	20	19.6		15.6		18.5		17.6		8.5	U	8.5	U	8.5	Ū	17.9					T
Cyanide	10	10.0	U	10.0	U	10.0	Ü	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U		Ι.		I^{-}
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Project: WESTING	HOUSE-H	HANFOR	D]						ł											
Laboratory: TMA]						i											
Case	SDG: B	09D67		1						1											
Sample Number		B09D67	,	B09D87	,	B09D91		B09D95		B09DC5		B09DD3)	E09DF5		B09DF9				<u> </u>	
Location		199-F1	-2	199-F5	-42	199-F5	-43A	199-F5	-44	199-F6-	-1	199-F7-	-2	199-F8-	-3	199-F8	-4			· · · · · · · · · · · · · · · · · · ·	
Remarks		NV,FIL		NV,FIL		NV,FIL		NV,FIL		NV,FIL		NV,FIL		NV,FIL		NV,FIL					
Sample Date		10/29/9		10/30/93	3	10/30/9	3	10/30/93	3	10/30/93	}	10/30/93)	10/29/93	3	10/29/9	3				
inorganic Analytes	CRDL	Result	Q	Recult	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Recult	Q	Result	IQ
Aluminum	200	15.5	U	15.5	U	15.5	U	15.5	U	15.5	U	15.5	U	15.5	U	15.5	U	1			1
Antimony	60	9.2	U	9.2	U	9.2	U	9.2	U	9.2	Ū	9.2	Ü	9.2	U	9.2	U	1	l		1
Arsenic	10	12.0		2.1	U	2.1	U	2.1	U	2.1	U	5.5	Π	2.6		6.0	Г	1			\top
Barium	200	29.8		33.6		29.8	Γ	22.4		26.1	Г	29.8		114	Г	36.0	T	Ì	—		\Box
Beryllium	5	0.20		0.20		0.20	U		U	0.20	U	0.20	U	0.20	Ū	0.20	U				
Cadmium	5	1.0	Ü	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U		1		
Calcium	5000	34200		28000	I	27500]	29600		28300		56600	П	136000	Г	69200	 	 			1
Chromium	10	4.6		6.9		6.1		16.1		6.1		10.0	Г	7.7	Г	11.5	1			i	
Cobalt	50	3.0		3.0	U	3.0	Ū	3.0	U	3.0	V	3.0	Ū	3.0	U	3.0	U				1
Copper	25	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9		4.4		2.9	U				1
Iron	100	30.0		27.5		16.2		24.0		13.4		23.3		23.3	T	16.2					1
Lead	3	2.9	U	2.9	U	2.9	U	2.9	Ū	2.9	U	2.9	U	2.9	U	2.9	U		ऻ		$\dagger \Box$
Magnesium	5000	11300		5060		4100		5210		3790		16900		34700		17300	İ				
Manganese	15	1.3	U	1.8		1.4		1.4		1.4		1.4		1.4		1.3	U				
Mercury	0.2	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	υ	0.20	U	0.20	U				\Box
Nickel	40	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U	3.9	2	3.9	U	3.9	U		 -		1
Potassium	5000	4170		1910		1580		1620		2690		6380		7680		5830	Ť				ff
Selenium	5	4.0		2.8	U	2.8	U	2.8	U	2.B	J	2.8	J	3.5	_	2.8	U				П
Silver	10	3.7	Ü	3.7	U	3.7	U	3.7	Ū	3.7	U	3.7	حا	3.7	C	3.7	U				\Box
Sodium	5000	47400		2680		2640		4000		3550		50800		59000		47400					\Box
Thallium	10		2	1.6	υ	1.6	U	1.6	Ü	1.6	J	1.6	c	1.6	U	1.6	U				\Box
Vanadium	50	22.0		2.6	U	2.6	υ	2.7		3.7		14.2		10.5		10.5				•	\Box
Zinc	20	8.5	S	8.5	C	8.5	J	8.5	C	12.9		8.5	U	8.5	υ	8.5	Ü				\vdash
Cyanide	10	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		 			
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Laboratory: 17MA]																	
Case	SDG: B	09D70		1																	
Sample Number		B09D70		B09DH8																	
Location		199-F5-	-1	EB-1								l								<u> </u>	
Remarks				EB																	
Sample Date		10/28/93		10/28/93																	
	CRIDI.		a		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	1	U		U				<u> </u>		<u> </u>	L		<u> </u>	<u> </u>						<u> </u>
Antimony	60		IJ		U											ļ 	<u> </u>		<u> </u>		
Arsenic	10		U		۵						\mathbb{L}				<u> </u>		<u> </u>		<u> </u>		$oldsymbol{oldsymbol{\perp}}$
Barium	200		U	1.2								<u> </u>						<u> </u>	_	<u> </u>	1
Beryllium	5		U	0.20										<u></u>							\bot
Cadmium	5	1.3	U		U		l								<u> </u>	<u> </u>	1		1	<u> </u>	
Calcium	5000	46000		59.0						L										<u> </u>	丄
Chromium	10	6.0	U	2.4	U		Γ				<u></u>			1			Ì			<u> </u>	
Cobalt	50	2.6	U		U								1	l	I						丄
Copper	25	8.3	U	5.2	υ			I			Γ]					l		\perp
Iron	100	342			υ				Ι	I	Ι										
Lead	3	2.9	U		U					'					\coprod	I	<u> </u>				Ш.
Magnesium	5000	6800		22.9			I						<u> </u>		L					<u> </u>	丄
Manganese	15	4.7	U	0.80						<u></u>										<u> </u>	$oldsymbol{\perp}$
Mercury	0.2	0.20	U	0.20			T													<u> </u>	丄
Nickel	40	7.6	U	4.4	U																
Potassium	5000	2880		186			Π.	1	Π				1		Γ_{-}					<u> </u>	$oldsymbol{ol}}}}}}}}}}}}}}}}}$
Selenium	5	2.8	U	2.8				Ι		l									<u> </u>		
Silver	10	2.6	U	2.6	U																<u> </u>
Socilum	5000	4400		114	U								I	l					1_	<u> </u>	\perp
Thaillium	10	1.6	U	1.6	U		П				Π	<u> </u>									
Variadium	50	5.5	U	5.5	U									L							
Zinc	20	13.3	U	4.4	U						Γ										
Cyanide	10	10.0	R	10.0	R																
			<u> </u>				Π				T	T									
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BLANK AND SAMPLE DATA SUMMARY

SDG: B09D70	REVIEWER: RS			DAT	E: 1/19/9	A		DACE 1	DP 1
COMMENTS:	REVIEWER. KS			ואמן	E. 1/19/9	<u>'</u>		PAGE_1_0	<u> </u>
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ССВ	Aluminum	31.0			ug/L	155	310	B09D70	U
ССВ	Antimony	23.3			ug/L	116.5	233	B09D70	U
ССВ	Barium	2.3			ug/L	11.5	23	B09D70	U
ССВ	Chromium	3.8			ug/L	19.0	38.0	B09D70, B09DH8	U
ССВ	Copper	13.4			ug/L	67.0	134	B09D70, B09DH8	U
ССВ	Iron	17.0			ug/L	85.0	170	B09DH8	U
ССВ	Manganese	1.8			ug/L	9.0	18.0	B09D70	U
ССВ	Nickel	6.1			ug/L	30.5	61.0	B09D70, B09DH8	U
ССВ	Zinc	9.8			ug/L	49	98	B09D70	U
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WHC-SD-EN-TI-238, Rev. 0

ACCURACY DATA SUMMARY

SDG: B09D70	REVIEWER: RJS	DATE: 1/19/94	PAGE_	1_OF_1_
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B09DH8S	Cyanide	16.7	B09D70, B09DH8	R
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WHC-SD-EN-TI-238, Rev. 0 DATA QUALIFICATION SUMMARY

SDG: B09D70	REVIEWER: RJS	DATE: 1/19/94	PAGE_1_OF_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	U	B09D70	Lab Blank Contamination
Antimony	Ŭ	B09D70	Lab Blank Contamination
Barium	Ŭ	B09D70	Lab Blank Contamination
Chromium	U	B09D70, B09DH8	Lab Blank Contamination
Copper	U	B09D70, B09DH8	Lab Blank Contamination
Iron	U	B09DH8	Lab Blank Contamination
Manganese	U	B09D70	Lab Blank Contamination
Nickel	U .	B09D70, B09DH8	Lab Blank Contamination
Zinc .	บ	B09D70	Lab Blank Contamination
Cyanide	R	B09D70, B09DH8	Matrix Spike
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Project: WESTING	10USE-I	IANFOR	<u>n</u>	1								4.0									
Laboratory: TMA	1000E-1	Initi Oit	_	1			į					100									
Case	SDG: B	09D71		1								100									
Sample Number		B09D71		B09DH9		T		i		T				I				T			
Location		199-F5		EB-1	-	†		 -		†		 									
Remarks		FIL		EB,FIL		†		t		†		 		t -							
Sample Date		10/28/9:	3	10/28/93	3			1		 		 									
	CRDL	Result	Q	Result		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	IQ	Result	Q	Result	Q
Aluminum	200	10.6	U	13.1	Ū	<u> </u>					† <u> </u>						Ť				1
Antimony	60	14.3	U	21.4	Ū	1					1	1	1		\vdash						1
Arsenic	10	2.1	Ū	2.1	ĺυ		1			1			1		1	1	1		ļ	-	\top
Barium	200	47.3	1	1.2	Ū		1						T				1				1
Beryllium	5	0.20	U	0.20		1		Î			1		T		1						1
Cadmium	5	1.3	Ū	1.3	Ū		Π		Γ	1	1		\vdash		T				Г		1
Calcium	5000	46300		59.0	Ū		Γ		1		Г		1		 	<u> </u>	T	<u> </u>			1
Chromium	10	2.2	U	3.0	U	<u> </u>				1	Π		1		1	<u> </u>	†				1
Cobalt	50	2.6	U	2.6	U	 				1					1	.	1				1
Copper	25	2.5	U	4.3	Ū	1		İ					1-				1				1
Iron	100	15.5	Ū	5.3	Ū	1	<u> </u>	1	T	1	⇈	 		İ	Г						1
Lead	3	2.9	U	2.9	Ü		 		1	1			1								†
Magnesium	5000	6870		40.2	U					1		<u> </u>		1	1	† · · · · · · · · · · · · · · · · · · ·	 	· · · · · · · · · · · · · · · · · · ·	!		1
Manganese	15	1.2	U	1.6	U	1					1	<u> </u>		1	1	i —					$\uparrow \neg$
Mercury	0.2	0.20	U	0.20	Ū				1			 	1	1							
Nickel	40	3.4	U	3.7	U	1		1				1					Ì				T
Potassium	5000	2800		308	Ū		Γ				Г		1		Π		1				
Selenium	5	2.8	υ	2.8	U			1			1	1	1	<u> </u>	1	i					
Silver	10	2.6	U	2.6	U					<u> </u>	Π		1	<u> </u>	Î						
Sodium	5000	4520		138	Г		Γ	<u> </u>	1	T				1						-	
Thallium	10	1.6	U	1.6		Ī			П		T				Π	·					T
Vanadium	50	5.5	U	5.5	Ū	1		1		1	1	1	Π		1				1		1
Zinc	20	4.4	Ü	6.2	U			1			Ī				П						1
Cyanide	10	N/A		N/A				<u> </u>			Г	1			1				ļ		
							<u> </u>										<u> </u>				1
			Π											<u> </u>							
							<u> </u>	1													
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SDG: B09D71	REVIEWER: RJS			DAT	E: 1/18/9	4		PAGE_1_0	DF_1_
COMMENTS:									· · · · · · · · · · · · · · · · · · ·
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLIES AFFECTED	QUALIFIER
PB	Aluminum	49.95			ug/L	247.5	499.5	B09DH9	U
ССВ	Antimony	23.3			ug/L	116.5	233.0	B09D71, B09DH9	U
ССВ	Chromium	3.8			ug/L	19.0	38	B09D71, B09DH9	U
ССВ	Copper	13.4			ug/L	67.0	134	B09DH9	U
ССВ	Iron	17.0			ug/L	85.0	170	B09D71	U
ССВ	Magnesium	63.1			ug/L	315.5	631.0	В09DН9	U
ССВ	Manganese	1.8			ug/L	9.0	18.0	B09D71, B09DH9	U
ССВ	Nickel	6.1			ug/L	30.5	61.0	B09DH9	U
ССВ	Potassium	90.130			ug/L	450.65	901.3	B09DH9	U
ССВ	Zinc	9.8			ug/L	49.0	98.0	B09DH9	U
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SDG: B09D71	REVIEWER: RJS	DATE: 1/18/94	PAGE_1_OF_1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	U	B09DH9	Lab Blank Contamination
Antimony	ប	B09D71, B09DH9	Lab Blank Contamination
Chromium	U	B09D71, B09DH9	Lab Blank Contamination
Copper	U	B09DH9	Lab Blank Contamination
Iron	U	B09D71	Lab Blank Contamination
Magnesium	U	B09DH9	Lab Blank Contamination
Manganese	U	B09D71, B09DH9	Lab Blank Contamination
Nickel	U	B09DH9	Lab Blank Contamination
Potassium	U	B09DH9	Lab Blank Contamination
Zinc	ប	B09DH9	Lab Blank Contamination
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Project: WESTING!	10USE-1	IANFORE	D																		
Laboratory: TMA]																	
Case	SDG: B	09D78																			
Sample Number		B09D78		B09D98				L						I							
Location		199-F5-	-4	199-F5-	45							Ι –									
Remarks		NV		NV																	
Sample Date		11/06/93		11/06/93				[
Inorganic Analytes	CRDL	Result		Result		Result	Q	Result	Q	Plesuit	Q	Flecult	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	10.6		10.6		1						<u> </u>						1	<u> </u>	<u> </u>	Ш
Antimony	60	12.9	U	12.9	U														L		
Arsenic	10	4.0		7.3															L		
Barlum	200	51.3		23.6	[<u> </u>	L		L		L		\perp
Beryllium	5	0.33		0.33																	
Cadmlum	5	1.3	U	1.3	U	L				<u> </u>											$oxed{oxed}$
Calcium	5000	102000		51300	[L	Ι.					I							L	<u> </u>	
Chromium	10	18.4		11.7			\Box	Ι		Γ		Γ		I							
Cobalt	50	2.6	U	2.6	U											I					
Copper	25	8.0		4.9											<u> </u>]					\prod
Iron	100	42.1		21.3			Γ														\prod
Lead	3	2.9	U	2.9	U				T			Ι – –									
Magnesium	5000	23500		11800														L			
Manganese	15	1.6		1.3		I	\Box			Γ		[L			<u></u>	
Mercury	0.2	0.20	Ū	0.20	U		П	I		Ι	Γ	I —					<u> </u>		Π.		
Nickel	40	3.4	U	5.0			Г				П	Γ	Ι					<u> </u>			
Potassium	5000	6600		4710																	
Setenkum	5	3.6		2.8		I	П					Γ.									\Box
Silver	10	2.6	U	2.6	U		П			T									Τ_	<u> </u>	
Sodium	5000	27100		16800			Γ	Ι													
Thailium	10	1.6	U	4.1					T												\prod
Vanadium	50		U	9.1	I				П										Γ		
Zinc	20	5.4		4.4			<u> </u>					1							Γ		
Cyanide	10	10.0	U	10.0	U		Г				Π										
_							Γ						Γ						Τ		\Box
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					1			1	1	1		1	Т				Π	1	1	<u> </u>	\Box
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Project: WESTING!	HOUSE-H	IANFOR	D]																	
Laboratory: TMA]																	
Case	SDG: B	09D79	_	1																	
Sample Number		B09D79)	B09D99]						I							\neg
Location		199-F5	-4	199-F5-	-45																
Remarks		NV,FIL		NV,FIL																	
Sample Date		11/06/9		11/06/93								I .									
Inorganic Analytes			Q		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	22.4		21.2													L	l			
Antimony	60	9.2	U	15.4							I						Γ	I			
Arsenic	10	5.1		5.4																	\Box
Barlum	200	56.6		29.5	L		L								1						
Beryllium	5	0.20	U	0.20	U														I		
Cadmium	5	1.1	L	1.6									\mathbf{L}		I		L_{-}				
Calcium	5000	102000		50300																	
Chromium	10	20.1		8.8																	T
Cobalt	50	3.0	<u>. </u>	3.0	U		<u> </u>													l	\Box
Copper	25	2.9	U	3.0															Ι.		\Box
tron	100	22.4	L	21.3											1			I	1		\Box
Lead	3	2.9	U	2.9	U													Ī			
Magnesium	5000	23700		11700								Ī .									П
Manganese	15	1.3	U	2.4							Г		П								П
Mercury	0.2	0.20		0.20	U																TTT
Nickel	40	3.9	U	5.1																	\Box
Potassium	5000	6580		4810			Г				Ī				1					1	\Box
Selenium	5	3.6		2.8			Г					T	1								П
Silver	10	3.7	U	3.7	U																\Box
Sodium	5000	27700		17100											1						
Thallium	10	1.6	U	2.2															1		\Box
Vanadium	50	5.5		14.0	I						Г								T		\prod
Zinc	20	8.5	U	8.5	U										T						\Box
Cyanide	10	N/A		N/A			 		İ		Г						Γ		1		TT
							П	1	<u> </u>	1		1				Ì	Г			1	\sqcap
						1						<u> </u>		<u> </u>							\Box
							\Box	†									 		1	<u> </u>	\top
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Project: WESTING! Laboratory: TMA				1 '																	
Case	SDG: B	09D62		1																	
Sample Number	1	IB09D82		B09DG2		1		I		T				T		1		<u> </u>		ı · · - · -	
Location		199-F5		199-F5-		İ		†		 				 		1	-			 	
Remarks				DUP	<u> </u>	 	· · · · · · · · · · · · · · · · · · ·	 		†		 		 		 		-		 	
Sample Date	······································	10/26/93	3	10/26/93	3		_	1		 		t — —		 						 	
	CROL	Recult	Q			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	īā	Result	Ta
Aluminum	200	49.0	U	123		1		T											<u> </u>		+
Antimony	60	9.2	Ú	9.2	υ						T	1	1	1	\top				†	†	1
Arsenic	10	2.1	w	2.1	W	<u> </u>	1	1			Г			T	1	1		1	\vdash		1
Barlum	200	30.8		34.7	Г		Π				П		1	1	1	1			 		\top
Beryllium	5	0.20	Ü	0.20	U									1	Ì				1	Î.	T
Cadmium	5	1.0	Ü	1.0	U										Π					<u> </u>	\top
Calcium	5000	54900	1	54500								1									1
Chromkum	10	53.2		61.1			П		Π		Г		Ī							1	\top
Cobalt	50	3.0	U	3.0	U																\top
Copper	25	10.4		55.8												Ī				1	\top
iron	100	312		1180																	\perp
Lead	3	2.9	U	2.9	U															<u> </u>	\perp
Magnesium	5000	8680		8650											L						\perp
Manganese	15	9.2		16.3			L								L		L	<u> </u>		<u> </u>	\perp
Mercury	0.2	0.20	U	0.20	U									<u> </u>	1_	<u> </u>					\perp
Nickel	40		U		U						<u> </u>			<u></u>	1_	<u> </u>	<u> </u>	<u> </u>		<u> </u>	\bot
Potassium	5000	2570		2520									<u> </u>		上	<u> </u>	<u> </u>		L		\perp
Selenium	5	2.8	U	2.8				<u> </u>				ļ	<u> </u>	L			<u> </u>			L	\perp
Silver	10		U		J							<u> </u>			<u> </u>	1			_		丄
Sodium	5000	7670		7640									$oldsymbol{ol}}}}}}}}}}}}}}}}}$		Ĺ	<u> </u>	<u> </u>		L	<u> </u>	\perp
Thallium	10	2.6	U		دا							L	1_	ļ	<u> </u>	ļ	ļ		ļ		\perp
Vanadium	50	3.0		2.7													L		L.	1	\perp
Zinc	20	12.3		21.2						<u> </u>			_		_				_	<u> </u>	
Cyanide	10	10.0	U	10.0	د								_		L	ļ <u>.</u>	L	L	$oxed{oxed}$		丄
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																<u> </u>	_	ļ	\perp	<u> </u>	\perp
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SDG: B09D82	REVIEWER: HMS			DAT	E: 1/18/9	4		PAGE_1	_OF_ <u>2</u>
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
PB	Aluminum	18.05			ug/L	90.25	180.5	B09D82	υ
ССВ	Thallium	3.2			ug/L	16	32	All	U
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SDG: B09D82	REVIEWER: HMS			TAD	E: 1/18/9	4		PAGE_2	_OF <u>_2</u>
COMMENTS:			•						
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	2X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ССВ	Arsenic	-2.4			ug/L	12	24	All	J .
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5-28

PRECISION DATA SUMMARY

SDG: B09D82	REVIEWER: SC		DATE: 1/20/94		PAGE_1_OF	1
COMMENTS:			,			
COMPOUND		SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
Соррег		B09D82	B09DG2	81.4	B09DB6, B09DG6	None
Iron		B09D82	B09DG2	73.6	B09DB6, B09DG6	None
				<u> </u>	•	
	 					

SDG: B09D82	REVIEWER: HMS	DATE: 1/18/94	PAGE_1_OF_1_
COMMENTS:	·		
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	U	B09D82	Lab Blank Contamination
Thallium	U	All	Lab Blank Contamination
Arsenic	J	All	Negative Lab Blank Contamination
Copper	None	All	Field Duplicate RPD
Iron	None	Ali	Field Duplicate RPD
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Project: WESTING	HOUSE-I	HANFOR	<u>D</u>]						'											
Laboratory: TMA]																	
Case	SDG: B																				
Sample Number		B09D83		B09DG3						,		I									
Location		199-F5	-6	199-F5-				l													
Flemarks		FIL		DUP,FIL								I									
Sample Date		10/26/9		10/26/93										I							
inorganic Analytes	CROL		Q			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	12.7	U		U		<u> </u>										L'_				
Antimony	60	12.9	U	12.9	U									l			L'				
Arsenic	10	2.1	W		W														L		
Barlum	200	31.4		31.6	ł		L														
Beryllium	5	0.21	U	0.20			Γ.										Γ				
Cadmium	5	1.3	U		U		П				T		П				Г				T^{-}
Calcium	5000	56800		58300			П						Π				Γ				
Chromium	10	48.3		49.7				ŀ			T^{-}										
Cobalt	50	2.6		2.6			Π		T			Γ							Ī	I	T
Copper	25	6.0	Įυ	1			Π										Γ				
fron	100	44.8	Ų	30.3	Ų		Π				Î		Ī				Γ				
Lead	3	2.9	U	2.9	U		Π		Г		1						T				1
Magnesium	5000	8930		9110			Π	1.	T		7						T -				T
Manganese	15	5.2	Ū	5.4	U		П						П		1		Г				T
Miercury	0.2	0.20	U	0.20	Ü																
Nickel	40	3.4	U	3.4	Ü		П										Γ				
Potassium	5000	2660	Г	2730					T		7		Г			1	Γ	Ī	Г		1
Selenium	5	2.8	Ü	2.8	U		Π						T			I					
Silver	10	2.6	U	2.6	U						Т						Γ				
Sodium	5000	7910		8090			1			1	T	1					1		Ī		T
Thallium	10	3.7	U	2.5	U			1	1		1		1								
Vanadium	50	5.5	U	5.5	U		П										Ī		T		1
Zinc	20	5.5	U	4.4	U		Γ				1		1		T				1		
Cyanide	10	N/A		N/A		· ·	Γ				T		П						Π		1
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			<u> </u>							1	\top	1								1	1
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SDG: B09D83	REVIEWER: HMS		1	DAT	E: 1/18/9	4		PAGE_1	_OF <u>_2</u> _
COMMENTS:							:		
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
PB	Aluminum	23.77			ug/L	118.85	237.7	All	U
ССВ	Beryllium	.30			ug/L	1.5	3.0	All	บ
ICB	Copper	17.8			ug/L	89	178	All	U
PB	Iron	53.49			ug/L_	267.45	534.9	All	U
ССВ	Manganese	1.4			ug/L	7	14	A.II	U
ССВ	Thallium	3.2			ug/L	16	32	A.li	U
<u>ІСВ</u>	Zinc	10	-	<u> </u>	ug/L	50	100	B09D83	U
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SDG: B09D83	REVIEWER: HMS			DAT	E: 1/18/9	4		PAGE_2	_OF_2_
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	2X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ССВ	Arsenic	-2.4			ug/L	12	24	All	J
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SDG: B09D83 REVIEWER: HMS DATE: 1/18/94 PAGE_LOF_L COMMENTS: COMPOUND QUALIFIER SAMPLES AFFECTED REASON Aluminum U All Lab Blank Contamination Beryllium U All Lab Blank Contamination Copper U All Lab Blank Contamination Iron U All Lab Blank Contamination Manganese U All Lab Blank Contamination Thallium U All Lab Blank Contamination Arsenic J All Negative Lab Blank Contamination Arsenic J All Negative Lab Blank Contamination Arsenic J All Negative Lab Blank Contamination Arsenic J All Negative Lab Blank Contamination All Negative Lab Blank Contamination				
COMPOUND QUALIFIER SAMPLES AFFECTED Aluminum U All Lab Blank Contamination Beryllium U All Lab Blank Contamination Copper U All Lab Blank Contamination Iron U All Lab Blank Contamination Manganese U All Lab Blank Contamination Thallium U All Lab Blank Contamination Thallium U All Lab Blank Contamination All Lab Blank Contamination All Negative Lab Blank Contamination	SDG: B09D83	REVIEWER: HMS	DATE: 1/18/94	PAGE_1_OF_1_
Aluminum U All Lab Blank Contamination Beryllium U All Lab Blank Contamination Copper U All Lab Blank Contamination Iron U All Lab Blank Contamination Manganese U All Lab Blank Contamination Thallium U All Lab Blank Contamination Thallium U All Lab Blank Contamination Zinc U B09D83 Lab Blank Contamination Arsenic J All Negative Lab Blank Contamination	COMMENTS:			
Beryllium U All Lab Blank Contamination Copper U All Lab Blank Contamination Iron U All Lab Blank Contamination Manganese U All Lab Blank Contamination Thallium U All Lab Blank Contamination Zinc U B09D83 Lab Blank Contamination Arsenic J All Negative Lab Blank Contamination	1	QUALIFIER		REASON
Copper U All Lab Blank Contamination Iron U All Lab Blank Contamination Manganese U All Lab Blank Contamination Thallium U All Lab Blank Contamination Zinc U B09D83 Lab Blank Contamination Arsenic J All Negative Lab Blank Contamination	Aluminum	U	All	Lab Blank Contamination
Iron U All Lab Blank Contamination Manganese U All Lab Blank Contamination Thallium U All Lab Blank Contamination Zinc U B09D83 Lab Blank Contamination Arsenic J All Negative Lab Blank Contamination	Beryllium	บ	All	Lab Blank Contamination
Manganese U All Lab Blank Contamination Thallium U All Lab Blank Contamination Zinc U B09D83 Lab Blank Contamination Arsenic J All Negative Lab Blank Contamination	Copper	U	All	Lab Blank Contamination
Thallium U All Lab Blank Contamination Zinc U B09D83 Lab Blank Contamination Arsenic J All Negative Lab Blank Contamination	Iron	U	All	Lab Blank Contamination
Zinc U B09D83 Lab Blank Contamination Arsenic J All Negative Lab Blank Contamination Contamination	Manganese	U	All	Lab Blank Contamination
Arsenic J All Negative Lab Blank Contamination	Thallium	U	All	Lab Blank Contamination
Arsenic J All Negative Lab Blank Contamination	Zinc	U	B09D83	Lab Blank Contamination
	Arsenic	J	All	Negative Lab Blank Contamination
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			-	
	-	_		

Project: WESTINGHOUSE-HANFORD

Laboratory: TMA				1																	
Case	SDG: B	09DB2		1																	
Sample Number		B09DB2		B09DD6								T			•			T		1	$\neg \neg$
Location		199-F5	-46	199-F7-	-3							1				1					
Remarks		NV		NV						·				1		 				†	
Sample Date		11/06/93		11/06/93										1		1					
Inorganic Analytes	CRDL		Q	<u> </u>	Q	Result	a	Result	Q	Flesuit	Q	Result	Ta	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	122		310						}	Ι	1			I		T				
Antimony	60	13.0		14.9			L							}							\Box
Arsenic	10	6.2		7.3		<u> </u>															
Barium	200	40.4		47.6	L						Π					T					\Box
Beryllium	5	0.20	U		U																
Cadmium	5	1.3	U		U																\sqcap
Calcium	5000	75600		67800								Ī					Π				\Box
Chromium	10	75.1	<u> </u>	8.0							T						Г			 	\Box
Cobalt	50		U		U								1				Ì				\Box
Copper	25		U	3.1]											Г			<u> </u>	\Box
Iron	100	26.5		26.6									Π							<u> </u>	\Box
Lead	3		U	2.9	U		Γ		Γ				T						1		\Box
Magnesium	5000	10300		20600			Π		Г										T		
Manganese	15	3.5		49.9																	
Mercury	0.2		U		U	}				I .		Ĭ .					Π				\Box
Nickel	40	5.3		7.0					Γ	Ī	Π	<u> </u>			Ī			-			\Box
Potassium	5000	4500		8360		Ī															
Selenium	5	3.4		3.9			Г														\Box
Silver	10		U	2.6	دا			I													\Box
Sodium	5000	21000		74500			Γ														\Box
Thallium	10	2.5		2.2																	
Vanadium	50	5.5	U	9.9			Г			1											\Box
Zinc	20	4.4	J	4.4	Ç											Ĭ					\Box
Cyanide	10	10.0	U	10.0	IJ														1		
								1							Ι						
																			T -		\Box
													Γ			1					
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Project: WESTING!	HOUSE-H	MANFORM	D)																		
Laboratory: TMA			i	1																	
Case	SDG: B	09083		1																	
Sample Number		B09DB3)	B09DD7																	
Location	-	199-F5-	46	199-F7-	3																
Remarks		NV,FIL	1	NV,FIL				1	,									T			•
Sample Date		11/06/93	3	11/06/93	3						•	1						T			
	CRDL		Q		Q	Result	Q	Result	Q	Result	Q	Result	a	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	25.3	<u> </u>	18.2					l					L			L.				
Antimony	60	12.9	U	12.9	U		<u> </u>				L								<u>L</u> _		
Arsenic	10	6.2		9.3			<u>. </u>														
Barlum	200	40.1		46.1																	
Beryllium	5		U	0.20																	
Cadmium	5	1.3	U	1.3	υ			1]]			L		<u> </u>		
Calcium	5000	76500		66800														<u> </u>			
Chromium	10	70.2		3.5										<u> </u>					L	<u> </u>	L
Cobalt	50	2.8		2.6											L		L		<u> </u>		
Copper	25	2.5	U	2.5	U				<u></u>	I									<u> </u>		
iron	100	5.3		5.3				<u> </u>	L									<u> </u>	1	<u> </u>	
Lead .	3	2.9	U	2.9	5		L					<u></u>	乚	<u> </u>	L			<u> </u>	<u> </u>		
Magnesium	5000	10300		20400								<u> </u>	<u>L</u>	<u> </u>	<u>L</u>	<u> </u>	L	ļ	<u> </u>		
Manganese	15	0.80		43.1									<u>L</u>	<u> </u>			L		<u>_</u>		
Mercury	0.2	0.20	_	0.20	L									<u> </u>	<u> </u>	<u> </u>	L		<u> </u>		
Nickel	40		U		رد				<u> </u>	<u> </u>		<u>]</u>		<u> </u>	L	<u> </u>		<u> </u>	<u> </u>		\bot
Potassium	5000	4500		8020							L	<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u>L</u>	ļ	<u> </u>		
Selenium	5	3.1		4.0										<u> </u>			L		<u> </u>		
Silver	10	2.6	U	2.6	U			<u> </u>	L		<u> </u>				L			<u> </u>	ļ		1_
Sodium	5000	21000		72900			L	<u> </u>		<u> </u>		ļ	<u> </u>	L		İ	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
Thailium	10	2.4		2.5			_		<u> </u>	<u> </u>	_		_	<u> </u>	<u> </u>	.	<u> </u>	<u> </u>	<u> </u>		
Vanadium	50	5.5		7.9						<u></u>							<u> </u>		<u> </u>		丄
Zinc	20		U		U							<u> </u>	ļ							<u> </u>	\bot
Cyanide	10	N/A		N/A									L.				↓_	<u> </u>	ļ	<u> </u>	1
															L		<u> </u>	<u> </u>	$oxed{igspace}$		
									L	<u> </u>			<u> </u>			ļ	L		<u> </u>	<u> </u>	\bot
															L		_		<u> </u>	<u> </u>	Ц_
													<u> </u>		L	ļ		ļ	$oxed{igspace}$	<u> </u>	↓_
															1		<u>L</u>	1	<u> </u>	<u> </u>	1_

Laboratory: TMA																					
Case	SDG: B	09DB6		1																	
Sample Number	·	B09DB6	;	B09DC0		B09DF0		B09DG6	;			1		T		Т		T	<u> </u>	1	
Location		199-F5-	-47	199-F5-	48	199-F8-	-2	199-F5-	47			 				1		 		<u> </u>	-
Remarks				NV		NV		DUP		<u> </u>				 		 		 		 	_
Sample Date		10/31/93	3	10/31/93	}	10/31/93	3	10/31/93	3			 		l		!		<u> </u>		1	
Inorganic Analytes	CRDL	Result	Q	Recult	Q	Result	Q			Result	Q	Result	Q	Result	Q	Result	a	Result	Ta	Result	TC
Aluminum	200	30.9	U	116	Г	23.6	<u> </u>	27.9	Ü								 	1	╀═╌	1	t
Antimony	60	12.9	U	12.9	U	12.9	U	12.9	Ü						1		\vdash	† · · · ·	 	 	t
Arsenic	10	3.0		2.1	υ	3.3		2.4					<u> </u>				 	 	† · · ·	<u> </u>	t
Barlum	200	53.5		38.2		45.8		53.8							1	1	\vdash	t	 	 -	十
Beryllium	5	0.22	U	0.30	Г	0.20	Ū	0.20	U	· · · · · · · · · · · · · · · · · · ·	Г		\Box		Т	†	1	†	Т	1	T
Cadmium	5	1.3	U	1.3	U	1.3	Ū	1.3	υ			† ·····	i –		1			 			十
Calcium	5000	102000		82200		97000		106000					<u> </u>		t		1	 	1	 	十
Chromium	10	15.4		19.6		8.1		15.4					T				1		†		十
Cobalt	50	2.6	U	2.6	υ	2.6	U	2.6	U		厂		T				1	1	† T		t
Copper	25	2.5	W	2.5	U	2.5	U	2.5	w		 	1	T		1			<u> </u>	1	†	t
iron	100	64.5	Ü	60.3		173	Г	48.9	υ			1	Г			1	<u> </u>	1	t		t
Lead	3	2.9	Ü	2.9	2	2.9	U	2.9	Ü						1	1	1	1	1		T
Magnesium	5000	23300		19300		25200		24100	\Box												T
Manganese	15	2.8	U	4.1		4.4		2.4	U				1			1			1	· -	1
Mercury	0.2	0.20	U	0.20	ט	0.20	Ū	0.20	Ċ							1			1	1	T
Nickel	40	27.2		7.4		3.4	Ū	44.8							Π		Π				T
Potassium	5000	6120		6390		8130		6320													T
Selenium	5	2.8	U	2.8	U	2.8	U	3.4										-			T
Silver	10	2.6	U	2.6	Ü	2.6	U	2.6	U												Ι
Sodium	5000	32900		22800		32600		34100							Π						Γ
Thallium	10	2.6	ט	2.2		1.6	U	1.6	IJ						L						Ι
Vanadium	50	5.5	U	6.0		5.5	U,	5.5	U												Ι
Zinc	20	4.4	J	6.6		4.4	υ	4.4	2		<u> </u>										
Cyanide	10	10.0	J	10.0	U	10.0	υ	10.0	U												Γ
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													Γ		1	1			T		T
																		Ī			1
															1				1	1	T
			\neg								H		T		1	<u> </u>	T	T	1		T

SDG: B09DB6	REVIEWER: HM	15		DAT	E: 1/20/9	4		PAGE_1_0)F_ <u>1</u>
COMMENTS:			5						
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ССВ	Aluminum	36.9			ug/L	184.5	369	B09DB6, B09DG6	U
ССВ	Beryllium	0.70			ug/L	3.5	7.0	B09DB6	U
PB	Copper	-5.6			ug/L	28.0	56	B09DB6, B09DG6	J
РВ	Iron	30.46			ug/L	152.3	304.6	B09DB6, B09DG6	U
ССВ	Manganese	4.1			ug/L	20.5	41	B09DB6, B09DG6	U
ICB	Thallium	3.2			ug/L	16	32	B09DB6	U
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WHC-SD-EN-TI-238, Rev. 0

ACCURACY DATA SUMMARY

SDG: B09DB6	REVIEWER: HMS		DATE: 1/20/94	PAGE_	1_OF_1_
COMMENTS:					
SAMPLE ID	COMPOUND		% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B09DG6S	Iron		129.8	B09DB6, B09DG6	None
B09DG6S	Mercury		128.7	B09DB6, B09DG6	None
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SDG: B09DB6	REVIEWER: HMS	DATE: 1/20/94	PAGE_1_OF_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	บ	B09DB6, B09DG6	Lab Blank Contamination
Beryllium	U	B09DB6	Lab Blank Contamination
Iron	U	B09DB6, B09DG6	Lab Blank Contamination
Manganese	U	B09DB6, B09DG6	Lab Blank Contamination
Thallium	U	B09DB6	Lab Blank Contamination
Copper	J	B09DB6, B09DG6	Negative Lab Blank Contamination
Iron	None	B09DB6, B09DG6	Matrix Spike
Mercury	None	B09DB6, B09DG6	Matrix Spike
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Project: WESTING!	HOUSE-H	IANFORI	D]			:			•									•		
Laboratory: TMA										1											
Case	SDG: B	09DB7								'											
Sample Number		B09DB7	,	B09DC1		B09DF1		B09DG7	,			Ï								1	
Location		199-F5-	-47	199-F5-	-48	199-F8-	2	199-F5-	-47											1	
Remarks		FiL		NV,FIL		NV,FIL.		DUP,Fil					•					1		<u> </u>	
Sample Date		10/31/93		10/31/93	3	10/31/93	3	10/31/93													
	CRDL		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	a	Result	Q	Result	a
Aluminum	200	193		13.7		10.6	U	28.4	Ü			[Π		Τ				T
Antimony	60	12.9	U	12.9	U	12.9	U	12.9	U												
Arsenic	10	4.2		2.7		3.1		2.4							Τ						
Barlum	200	56.8		39.9	Г	48.2		52.5	1						1	1	T-		1		\top
Beryllium	5	0.20	U	0.20	U	0.20	U	0.20	Ü		Г				Ī		Π				
Cadmium	5	1.3	w	1.3	Ū	1.3	U	1.3	IJ				1		1						1
Calcium	5000	106000		87900	Г	101000		102000			Г				1	1	Ī			1	
Chromium	10	15.0		17.4	Г	4.7	Г	15.3			T		1	T		1	1	1			
Cobalt	50	2.6	U	2.6	U	2.6	U	2.6	U			1	1		T	†	İ		1	<u> </u>	1
Copper	25	2.5	Ü	2.5	U	2.5	U	2.5	U			1	Ì		1	1	1		<u> </u>	 	1
iron	100	24.2	Ū	8.0		12.3	Г	30.4	U		Г		1		†	1		1	T		1
Lead	3	2.9	υ	2.9	U	2.9	U	2.9	U		1		T		1	T	Π		1	1	1
Magnesium	5000	23700		20200		25800		22700													
Manganese	15	8.1		1.3		1.0	Г	2.4	U				T			1					
Mercury	0.2	0.20	U	0.20	U	0.20	U	0.20	Ü				1	1							\Box
Nickel	40	14.2		3.4	U	3.4	U	15.2							Ī	1					
Potassium	5000	6120		6430		8430		5870													T
Selenium	5	2.8	U	2.8	U	2.8	U	2.8	U				1			1					\top
Silver	10	2.6	Ü	2.6	Ų	2.6	U	2.6	U		Г	1		1	1	1			Π		
Sodium	5000	33800		23300		33900	· · · ·	32100		· · · · · · · · · · · · · · · · · · ·	<u> </u>			Î							
Thallium	10	1.6	U	1.9		1.6	U	1.6	U								Ī				
Vanadium	50	5.5	Ū	5.5	U	5.5	U	5.5	U		Γ					i	Т				
Zinc	20	4.4	IJ	5.6		4.4	U	4.4	IJ		Γ	1				1	Т		T		
Cyanide	10	N/A		N/A		N/A		N/A			Γ										T
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SDG: B09DE	37 REVIEWER	. HMS	3		DAT	E: 1/20/9	4		PAGE_1_C	OF_2
COMMENTS	:									
SAMPLE ID	COMPOUN	D	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ССВ	Aluminum		30.9			ug/L	154.5	309	B09DG7	U
PB	lron		29.42			ug/L	147.1	294.2	B09DB7, B09DG7	U
ССВ	Manganese		1.4		<u>-</u>	ug/L	7.0	14.0	B09DG7	U
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						<u> </u>				
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SDG: B09DB7	REVIEWER: HM	S		DAT	E: 1/20/9	4		PAGE 2_()F 2
COMMENTS:		-				<u> </u>			<u></u>
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	2X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ICB	Cadmium	-1.6			ug/L	3.2	16.0	B09DB7, B09DG7	J
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PRECISION DATA SUMMARY

SDG: B09DB7 REV	IEWER: HMS	DATE: 1/20/94		PAGE_1_OF	1
COMMENTS:					
COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
Zinc	B09DG7	B09DG7D	200.0	B09DB7, B09DG7	J
					<u> </u>

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SDG: B09DB7	REVIEWER: HMS	DATE: 1/20/94	PAGE_1_OF_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	U	B09DG7	Lab Blank Contamination
Iron	U	B09DB7, B09DG7	Lab Blank Contamination
Manganese	U	B09DG7	Lab Blank Contamination
Cadmium	J	B09DG7	Negative Lab Blank Contamination
Zinc	J	B09DB7, B09DG7	Lab Duplicate
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INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

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Project: WESTING	HOUSE-H	IANFOR	D																		
Laboratory: TMA]																	
Case	SDG: B	09DC8		1																	
Sample Number		B09DC8)									Ì				I				Γ	
Location		199-F7-	-1							<u> </u>		<u> </u>				†				-	$\neg \neg$
Remarks		NV										1		1		1				1	\neg
Sample Date		10/27/93	3									<u> </u>		1							$\neg \neg$
	CRIDIL.		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	17.9							Ī				1			1				i	\sqcap
Antimony	60	.12.9	U						T		Π	<u> </u>				1	Г		1	i — —	
Arsenic	10	9.3					Γ"	1				1	1		1				1		\top
Barium	200	45.0					Π					1	1		1-	1					\vdash
Beryllium	5	0.20	U										1		1	1	Г		1	<u> </u>	\Box
Cadmlum	5	1.3	U				Г				T	1	1		1	1			T-	<u> </u>	
Calcium	5000	58700											1		1	i e			1		\Box
Chromium	10	4.1										İ			1	†		1	†	!	\Box
Cobalt	50	2.6	U			1	1				T	1			1	1	 		1	†	\Box
Copper	25	6.8			· · ·		Τ					1			1	1			1		\Box
Iron	100	9.7								1		† · · · · · · ·		1	1	1			1	l	\Box
Lead	3	2.9	U			1				1		† · · · · · · ·			1	<u> </u>			1	† 	\Box
Magnesium	5000	18100							T-	1	\vdash	†———	1			1	1				\Box
Manganese	15	1.3								1		<u> </u>	1	1	1	<u> </u>	\Box		1		\Box
Mercury	0.2	0.20	Ü				1					† · · · · · · ·	1		1	.	1		1		\Box
Nickel	40	3.4	Ü			· · · · · · · · · · · · · · · · · · ·	┪				T		1		1	† <u>-</u>	1		1		
Potassium	5000	7680					Т						1			—	<u> </u>	<u> </u>	1	†	H
Selenium	5	3.6				-	П		_	1	1		1		1		İ		1		\Box
Silver	10	2.6	U				<u> </u>				 				T				1	<u> </u>	\Box
Sodium	5000	55900				 		†	\vdash		\vdash	1			\vdash		†	· · · · · ·	1		1
Thallium	10	2.5					Г		†	·						1	\Box				\Box
Vanadium	50	17.4				<u> </u>	_	 	1		 	†	l		1	· · · · · ·	I^-				1-1
Zinc	20	12.5							<u> </u>		<u> </u>		1		1		†		1		\Box
Cyanide	10	10.0	U				 	† · · · · · · · · · · · · · · · · · · ·	 	<u> </u>	┢	 	1 –				 		†		\Box
						<u> </u>	┢		一	<u> </u>	\vdash	 			†	1	1				\Box
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Project: WESTINGHOUSE-HANFORD

Laboratory: TMA	LIGIOCI. MESTINGI	ICCOE-I	MILL OU																			
Sample Number	Laboratory: TMA] '																	
Location	Case	SDG: B	09DC9		1																	
Remarks NV,FIL	Sample Number		B09DC9	<u> </u>					1													
Sample Date 10/27/33	Location		199-F7-	-1							1 -				Ī							
Inorganic Analytes CROL Result Q R	Remarks		NV,FIL																			
Aluminum 200 26.4	Sample Date		10/27/93	3																		
Antimony 60 14.0	Inorganic Analytes	CROL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Resiult	Q	Result	Q	Result	<u>a</u>	Result	Q	Result	Q
Arsenic 10 10.1	Aluminum	200	26.4					Γ			Ţ				<u> </u>	П				Ι		1
Barlum 200 46.2	Antimony	60	14.0																			
Beryllium	Arsenic	10	10.1	Π						Π										Γ		Ι
Cadmium 5 1.3 U <td>Barlum</td> <td>200</td> <td>46.2</td> <td>1</td> <td></td> <td></td> <td></td> <td>П</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td>П</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>\Box</td>	Barlum	200	46.2	1				П	1					П								\Box
Calcium 5000 59200 Image: Composition of the property of the propert	Beryllium	5	0.24	Γ											Ī			Γ		I		\mathbb{L}
Chromium 10 5.5 Image: stress of the content of the	Cadmium	5	1.3	Ū																		
Cobalt 50 2.6 U Image: contract of the contract of	Calcium	5000	59200	Τ				1														\mathbf{I}
Copper 25 2.5 U Image: second control of the contr	Chromium	10	5.5	T						1								Ι				\Box
Iron	Cobalt	50	2.6	Ū							 	1					<u> </u>			Τ		Т
Iron 100 25.5	Copper	25	2.5	Ū				1	 	Γ	1	Г					· -					
Magnesium 5000 18200		100	25.5	1				1	 											T		T
Manganese 15 1.4 <t< td=""><td>Lead</td><td>3</td><td>2.9</td><td>Ū</td><td></td><td>Г</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Π</td><td></td><td></td><td></td><td>T</td></t<>	Lead	3	2.9	Ū		Г												Π				T
Manganese 15 1.4 <t< td=""><td>Magnesium</td><td>5000</td><td>18200</td><td><u> </u></td><td>1</td><td></td><td></td><td></td><td></td><td>Ī</td><td></td><td><u> </u></td><td></td><td></td><td></td><td></td><td></td><td>Γ.</td><td></td><td>Π</td><td></td><td></td></t<>	Magnesium	5000	18200	<u> </u>	1					Ī		<u> </u>						Γ.		Π		
Mercury 0.2 0.20 U Image: Control of the control o		15	1.4		_			1	1			1]			1
Potassium 5000 7540 <th< td=""><td></td><td>0.2</td><td>0.20</td><td>Ū</td><td></td><td></td><td></td><td></td><td></td><td>Π</td><td></td><td>Π</td><td>1</td><td></td><td></td><td></td><td></td><td>Ι.</td><td></td><td></td><td></td><td>\mathbb{T}</td></th<>		0.2	0.20	Ū						Π		Π	1					Ι.				\mathbb{T}
Potassium 5000 7540 Image: Control of the control of		40	3.4	Ū			,		1		1						1		· · · · · ·	T^-		1
Selenium 5 3.3		5000	7540		<u> </u>		 _			1												
Silver 10 2.6 U Image: Control of the control of t		+	3.3	一				1	1	Г	1]							T
Sodium 5000 55400 .		10	2.6	U					\Box	T	1	1		Π		1	1	П		T	1	T
Thallium 10 2.4		5000	55400			Г		Î			\vdash				1					T		
Vanadium 50 17.7	Thallium		2.4	T				† <u> </u>	<u> </u>		1											
Zinc 20 5.0				 				Т		Ι	1		1	П	1					Ι		
				t^-	t - 1			1	1	Г	1			Γ	[Γ		Γ				
						\Box		T			1			T	1							
		<u> </u>		┢				1	1	Г		1		Π	1							
			-	\vdash				1	T	<u> </u>		1			1	Π				T	ľ	T
	,	 		┌─	<u> </u>		 -	 	 			1		1	1	1	1		<u> </u>	Τ		\top
────────────────────────────────────				Ι				T	1	1	1				1					1		
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												<u>L</u> _	<u></u>	<u>L</u> .	<u> </u>	<u></u>	<u></u>	<u>L</u> _	<u> </u>	L_	L	

Project: WESTINGHOUSE-HANFORD Laboratory: Roy F. Weston			D]																	
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Case	SDG: B	09DH0		1		•															
Sample Number		B09DH0)	B09DH1										1		\	1	T			
Location		199-F5	-6	199-F5-	-6									<u> </u>							
Remarks		SPLIT		SPLIT,F	IL					1								T			
Sample Date		10/26/9:		10/26/93																	
	CRDL	Result		Result		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	64.7		37.3				L					T						T		
Antimony	60	20.0					L											I			Π
Arsenic	10	2.0	W		W													Ι.	Τ		T
Barium	200	34.9		29.6					I										Ī		
Beryllium	5	1.0		1.0				1		<u> </u>]]	1	Τ		\prod
Cadmium	5	1	J	2.3					Γ			Γ							T_{-}		\Box
Calcium	5000	52900	J		J														T		
Chromium	10	55.9	L	42.5														L			
Cobalt	50	5.0		5.0									ľ		[$\left[\right]$				\Box
Copper	25	6.8	U	3.2					Π].			ľ		[_				T^{-}		\Box
Iron	100	343	J	46.4																	
Lead	3	2.9	L	2.0	W										\Box	,				L	\Box
Magnesium	5000	8580	J	1	J							Ι							Γ_{-}		
Manganese	15	10.1	U	6.5			Γ_				Γ										
Mercury	0.2	0.10	U	0.10																	
Nickel	40		U		Ü					I											
Potassium	5000	2790		2670					Г	<u> </u>		L			<u> L</u>				Ι		
Selenium	5	2.2		1	u		Γ_{-}			Ι			[<u> </u>			<u>L</u>	Τ_		
Silver	10	3.0	U		U														<u> </u>		
Sodium	5000	7600	7	7060	J												<u> </u>		Γ_{-}		
Thallium	10	2.0			U		Г.,	I			I	I			L						
Vanadium	50	1	U		U																
Zinc	20	11.2	ប្រ	9.4	U				1	1	1				1]_	<u>L</u>	
Cyanide	10	20.0	U	N/A					Г					Ĭ					Γ_{-}		\Box
]			I					T												
							Π														
		ļ ———	Π	[Γ	1	Γ	T		Ţ	Γ			1					T
			1				<u> </u>	1		1	Ī					1			$\prod_{i=1}^{n}$		
			T					<u> </u>		1	1				T		Ī		T	1	\Box
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SDG: B09DH0	REVIEWER: HMS			DAT	E: 1/18/9				_OF <u>_2</u>
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
PB	Aluminum	28.3			ug/L	141.5	283	All	U
PB	Arsenic	-2.1			ug/L	10.5	21	All	J
PB	Copper	3.5			ug/L	17.5	35	All	υ
PB	Iron	64.5			ug/L	322.5	645	B09DH1	υ
ICB	Manganese	2.2			ug/L	11	22	Ali	U
РВ	Nickel	20.3			ug/L	101.5	203	All	U
ССВ	Vanadium	15.2			ug/L	76	152	All	U
PB	Zinc	6.6			ug/L	33	66	Ali	U
							<u></u>		
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SDG: B09DH0	REVIEWER: HMS	<u> </u>			DAT	E: 1/18/9	4.		PAGE_2	_OF <u>2</u>
COMMENTS:							·			
SAMPLE ID	COMPOUND		RESULT	Q	RT	UNITS	2X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ССВ	Lead		-2.2			ug/L	4.4	22	All	1
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ACCURACY DATA SUMMARY

SDG: B09DH0	REVIEWER: HMS	DATE: 1/18/94		GE_1_OF_1_
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B09DH0S	Antimony	71.1	All	J
B09DH0S	Selenium	69.0	All	1
B09DH0A	Selenium	52.0	В09DH0	1
B09DH1A	Selenium	66.3	B09DH1	J
		-		
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PRECISION DATA SUMMARY

SDG: B09DH0	REVIEWER: HMS	DATE: 1/18	8/94	PAGE_1_OF	_1
COMMENTS:					
COMPOUND	SAMPLE I	ID: SAMPLE ID	RPD	SAMPLES AFFECTED	QUALIFIER
Cadmium	воэрно	B09DH0D	118.2	All]
Calcium	B09DH0	B09DH0L	14.3	Ali	1
Iron	B09DH0	B09DH0L	13.3	All	ı
Magnesium	B09DH0	B09DH0L	16.7	All	J
Sodium	B09DH0	B09DH0L	14.5	All	J
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	<u> </u>		
SDG: B09DH0	REVIEWER: HMS	DATE: 1/18/94	PAGE_1_OF_1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	U	All	Lab Blank Contamination
Copper	U	All	Lab Blank Contamination
Iron	U	B09DH1	Lab Blank Contamination
Manganese	U	All	Lab Blank Contamination
Nickel	U	Ali	Lab Blank Contamination
Vanadium	U	All	Lab Blank Contamination
Zinc	U	All	Lab Blank Contamination
Arsenic	1	All	Negative Lab Blank Contamination
Lead	J	All	Negative Lab Blank Contamination
Antimony	J .	All	Matrix Spike
Selenium	J	All	Matrix Spike
Cadmium	J	All	Lab Duplicate
Selenium	1	All	GFAA Analytical Spike
Calcium	J	All	ICP Serial Dilution
Iron	J	All	ICP Serial Dilution
Magnesium	J	Ail	ICP Serial Dilution
Sodium	J	All	ICP Serial Dilution
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Project: WESTING!	HOUSE-I	IANFOR	D]'																	
Laboratory: Roy F.				1									V								
Case	SDG: B	109DH4		1																	
Sample Number		В09ОН4	L	B09DH5	,	T						Π	,	1		ľ		T .	-	Γ	
Location		199-F5	-47	199-F5-	47	<u> </u>	_	Ť i					-			 				 	
Remarks		SPLIT		SPLIT,F	IL,	<u> </u>		1		 		—	-					<u> </u>		 	
Sample Date		10/31/93	3	10/31/93	,	1		1		1		1	•			 				<u> </u>	
	CRDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Ta
Aluminum	200	21.4	U	25.5	U		Γ		Г		1			1		1	1	1	_		\top
Antimony	60	20.0	W	20.0	W		П		1		1	1	T		1					 	1
Arsenic	10	2.0	W	2.0	W						1		1		1	1		}	1	†	\top
Bartum	200	60.4		57.6				I			Τ		1			"	1	1	T	t	\top
Beryllium	5		Ū	1.0	U		Γ	I			Τ		T_	1	Т		T		1	1	1
Cadmium	5	2.0	U	2.0	U		Π				T	1	1-							1	\top
Calcium	5000	102000	J	102000	J		П		Ì		1	1		Î	1			1			\top
Chromium	10	17.1		21.1			П					1	T-			1	1		\Box		\top
Cobalt	50	5.0	U	5.0	ŭ		Г	T	1	Ī	Т		T		T		1		Т		\top
Copper	25	3.0	U	3.0	U					Î	П						T		Г		
Iron	100	49.5	U		U						П				1		T		Г		十
Lead .	3	2.0	U	2.0	Ü		П			İ	П		T		T		1		Π		\top
Magnesium.	5000	23500	J	23500	J		Г			I	Π		Ţ		T		Τ				1
Manganese.	15	2.3	J	<u> </u>	J						Ι										
Mercury	0.2	0.10	Ū	0.10	IJ			I			Ι		\mathbf{L}_{-}		Ι'_]					T
Nickel	40	20.6		14.9						I	T								Г		\top
Potassium	5000	6180		5400							T		T				Т				\top
Selenium	5	3.3	J	2.0	IJ									ì							T
Silver	10	3.0	W	3.0	3						Ι				L						T
Sodium	5000	34300	J		ے ا																Т
Thallium	10	2.0	ÜJ	2.0	3																T
Vanadium	50	10.9		8.1	7	[]						I		Ι.		Т
Zinc	20	9.3	U	8.0	U				П							1	Π				T
Cyanide	10	20.0	U	N/A					Г	<u> </u>					T		П				T
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									<u> </u>		Γ				Γ						T
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INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

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REVIEWER: RJS			DAT	E: 1/20/9	4		PAGE_1_0)F_2
	ı							
COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
Aluminum	39.9			ug/L	199.5	399	B09DH4, B09DH5	U
Antimony	-20.0			ug/L	100	200·	B09DH4, B09DH5	J
Iron	17.2			ug/L	86	172	B09DH4, B09DH5	U
Silver	-3.0		,	ug/L	15	30	B09DH4, B09DH5	J
Zinc	16.6			ug/L	83	166	B09DH4, B09DH5	บ
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	<u> </u>							
ı								
	COMPOUND Aluminum Antimony Iron Silver Zinc	COMPOUND RESULT Aluminum 39.9 Antimony -20.0 Iron 17.2 Silver -3.0 Z'inc 16.6	COMPOUND RESULT Q Aluminum 39.9 Antimony -20.0 Iron 17.2 Silver -3.0 Zinc 16.6	COMPOUND RESULT Q RT Aluminum 39.9 Antimony -20.0 Iron 17.2 Silver -3.0 Z'inc 16.6	COMPOUND RESULT Q RT UNITS Aluminum 39.9 ug/L Antimony -20.0 ug/L Iron 17.2 ug/L Silver -3.0 ug/L Z'inc 16.6 ug/L	COMPOUND RESULT Q RT UNITS SX RESULT Aluminum 39.9 ug/L 199.5 Antimony -20.0 ug/L 100 Iron 17.2 ug/L 86 Silver -3.0 ug/L 15 Zinc 16.6 ug/L 83	COMPOUND RESULT Q RT UNITS 5X RESULT 10X RESULT Aluminum 39.9 ug/L 199.5 399 Antimony -20.0 ug/L 100 200 Iron 17.2 ug/L 86 172 Silver -3.0 ug/L 15 30 Zinc 16.6 ug/L 83 166	COMPOUND RESULT Q RT UNITS 5X RESULT RESULT 10X RESULT AFFECTED Aluminum 39.9 ug/L 199.5 399 B09DH4, B09DH5 Antimony -20.0 ug/L 100 200 B09DH4, B09DH5 Liron 17.2 ug/L 86 172 B09DH4, B09DH5 Silver -3.0 ug/L 15 30 B09DH4, B09DH5 Zinc 16.6 ug/L 83 166 B09DH4, B09DH5

SDG: B09DH4	REVIEWER: RJS	1 1		DAT	E: 1/20/9	4		PAGE_2_C	OF_2
COMMENTS:		1							
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	2X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ССВ	Arsenic	-2.6			ug/L	5.2	26	B09DH4, B09DH5	J
ICB	Manganese	-2.3			ug/L	4.6	23	B09DH4, B09DH5	1
ССВ	Thallium	-3.5			ug/L	7.0	35	B09DH4, B09DH5	J
ССВ	Vanadium	-4.4			ug/L	8.8	44	B09DH5	1
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WHC-SD-EN-TI-238, Rev. 0

ACCURACY DATA SUMMARY

SDG: B09DH4	REVIEWER: RJS	DATE: 1/20/94	PAGE_1_OF_1_	
COMMENTS:			,	
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B09DHI4S	Selenium	64	B09DH4, B09DH5	J
B09DH5A	Lead	84.9	B09DH5	J
B09DH4A	Selenium	72	B09DH4	J
B09DH5A	Selenium	79.5	B09DH5	J
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PRECISION DATA SUMMARY

SDG: B09DH4 REVIEW	'ER: RJS	DATE: 1/20/94		PAGE_1_OF	1			
COMMENTS:								
COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER			
Calcium	B09DH4	B09DH4L	14.8	B09DH4, B09DH5	J			
Magnesium	B09DH4	B09DH4L	15	B09DH4, B09DH5	J			
Sodium	B09DH4	B09DH4L	12.2	B09DH4, B09DH5	J			
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SDG: B09DH4	REVIEWER: RJS	DATE: 1/20/94	PAGE 1 OF 1
COMMENTS:		-	
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	U	B09DH4, B09DH5	Lab Blank Contamination
Iron	U	B09DH4, B09DH5	Lab Blank Contamination
Zinc	Ū	B09DH4, B09DH5	Lab Blank Contamination
Antimony	1	B09DH4, B09DH5	Negative Lab Blank Contamination
Arsenic	1	B09DH4, B09DH5	Negative Lab Blank Contamination
Manganese	1	B09DH4, B09DH5	Negative Lab Blank Contamination
Silver	J	B09DH4, B09DH5	Negative Lab Blank Contamination
Thallium	J	B09DH4, B09DH5	Negative Lab Blank Contamination
Vanadium	1	B09DH5	Negative Lab Blank Contamination
Selenium	1	B09DH4, B09DH5	Matrix Spike
Lead	J	B09DH5	GFAA Analytical Spike
Selenium	1	B09DH4, B09DH5	GFAA Analytical Spike
Calcium	J	B09DH4, B09DH5	ICP Serial Dilution
Magnesium	1	B09DH4, B09DH5	ICP Serial Dilution
Sodium	J	B09DH4, B09DH5	ICP Serial Dilution
	1		

Project: VVESTINGI	HOUSE-H	IANFOR	D	1																	
Laboratory: TMA				1																	
Case	SDG: B	09DJ2		1																	
Sample Number		B09DJ2	!					T						T		<u> </u>					
Location		EB-2										1							-		
Remarks		EB									,	1						-			
Sample Date		11/03/93	3	T														i			
Inorganic Analytes	CROL				Q	Result	Q	Recult	Q	Result	Q	Result	Q	Recult	Q	Result	Q	Result	a	Result	Q
Aluminum	200	19.5	W										1	1	1			1			\top
Antimony	60	12.9											1			,	T .	i		1	1
Arsenic	10	2.1							Г			1	Τ				Π	1			\top
Barlum	200	1.2	U								Ι					<u> </u>					
Beryllium	5	0.31	Ü					I											Ì		T
Cadmium	5	1.3	U						Γ				Γ						Ī		1
Calcium	5000	59.0	Ū						Г				Γ	I			Π	ſ			T
Chromium	10	6.3	Ī						П				T								1
Cobalt	50	2.6	U										T								T
Copper	25	2.5	U				Г		1		Γ	T	1		П						\top
Iron	100	37.7	Ü						Π				1		T						T
Lead	3	2.9	U																		
Magnesium	5000	22.9	U												Π						\top
Manganese	15	0.86	U						П				Т								T
Mercury	0.2	0.20	U										П		П						П
Nickel	40	3.6																			
Potassium	5000	101							1		I								T		
Selenium	5	2.8	U								Π	T	T		Π						T
Silver	10	2.6											Ι								T
Sodium	5000	114	Ü					I	Π				Γ					I			
Thallium	10	1.6	Ū			I		1	Π		Ι										
Vanadium	50	5.5	U						Π		Γ	Γ	П		Π						
Zinc	20	4.4	Ū				Π		T			}									
Cyanide	10	10.0	Ü				Γ		Ī						Γ						
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BLANK AND SAMPLE DATA SUMMARY

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SDG: B09DJ2	REVIEWER: HMS			DAT	Ė: 1/19/9	4		PAGE_1	_OF_ <u>1</u> _
COMMENTS:									·
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ССВ	Aluminum	26.5			ug/L	132.5	265	B09DJ2	U
ССВ	Beryllium	0.5			ug/L	2.5	50	B09DJ2	U
PB	Iron	34.17			ug/L	170.85	341.7	B09DJ2	U
ССВ	Manganese	1.2			ug/L	6	12	B09DJ2	υ
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PRECISION DATA SUMMARY

SDG: B09DJ2 REVIE	EWER: HMS	DATE: 1/19/94		PAGE_1_OF	1
COMMENTS:					
COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
Aluminum	B09DJ2	B09DJ2D	183.1	B09DJ2	J
		:			
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	r ·		
SDG: B98DJ2	REVIEWER: HMS	DATE: 1/19/94	PAGE_1_OF_1_
COMMENTS:		· · · · · · · · · · · · · · · · · · ·	
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	U	B09DJ2	Lab Blank Contamination
Beryllium	U	B09DJ2	Lab Blank Contamination
Iro n	U	B09DJ2	Lab Blank Contamination
Manganese	- U	B09DJ2	Lab Blank Contamination
Aluminum	J	B09DJ2	Lab Duplicate
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INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Page_	1	of	1

Project: WESTING	OUSE-H	IANFOR	D.	1																	
Laboratory: TMA				1																	
Case	SDG: B	09DJ3																			
Sample Number		B09DJ3				Ι		Ţ				1		T						Γ	
Location		EB-2						İ		1		 									
Remarks		EB,FIL				1		1				 		···-		 				 	
Sample Date		11/03/93	3			1		ļ		1									/	····	
Inorganic Analytes	CRDL	Result	Q	Result	a	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	ā	Result	ĪQ	Result	Q
Aluminum	200	1230	J							1		1	T						1		1
Antimony	60	12.9	Ü				1	1		1		i i				<u> </u>	T		1		T
Arsenic	10	2.1	U			1	П	1		1		1			1	†		<u> </u>	1		
Barium	200	5.1	U				П	,			Т				1	ļ			1		1
Beryllium	5	0.23	U	I		1					1			<u> </u>					1		T
Cadmium	5	1.3	Ų	Ī	Г				Ī	1	Τ			T	1		П	1	1	1	\top
Calcium	5000	1230					1				Т		1	1	1				1		1
Chromium	10	2.9					Ī		T	1		1		1					1		1
Cobalt	50	2.6					Π			1	1										1
Copper	25	2.6	Ū				Г		Г		T				T	1			1-		1
Iron	100	85.9				1	1		Г		Т					1			1		
Lead	3	2.9	U			1	1													i	1
Magnesium	5000	130	Ü				П				П								1		1
Manganese	15	35.6	J				П				П								1		T
Mercury	0.2	0.20	U								1								1		1
Nickel	40	3.4	U								1				Ì				1		1
Potassium	5000	166									Γ								1		1
Selenium	5	2.8	Ū			<u> </u>					П	T							1		1
Silver	10		U										I		Π						
Sodium	5000	262				I				<u> </u>					Π				T	Ī	1
Thalilum	10	1.7	5				T				Π								T		1
Vanadium	50	5.5	د				Г				П			I			Π		I^-	Ī	1
Zinc	20	8.6	C				Ī	<u> </u>	<u> </u>	<u> </u>										Ī	1
Cyanide	10	N/A						Ì			Γ				T						1
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HC-SD-EN-TI-238, Rev. 0

BLANK AND SAMPLE DATA SUMMARY

SDG: B09DJ3	REVIEWER: HMS				E: 1/19/9	4		PAGE_1_OF_1_		
COMMENTS:										
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER	
ССВ	Barium	1.4			ug/L	7.0	14.0	B09DJ3	υ	
ССВ	Beryllium	.50			ug/L	2.5	5.0	B09DJ3	U	
ССВ	Copper	7.5			ug/L	37.5	75	B09DJ3	U	
ССВ	Magnesium	40.2			ug/L	201	402	B09DJ3	U	
ICB	Thallium	3.2			ug/L	16	32	B09DJ3	U	
ССВ	Zinc	5.1			ug/L	25.5	51.0	B09DJ3	บ	
					,					
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PRECISION DATA SUMMARY

SDG: B09DJ3	REVIEWER:	HMS		DATE: 1/19/94		PAGE_1_OF_1_					
COMMENTS:											
COMPOUND		SAMPLE ID:		SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER				
Aluminum		B09DJ3		B09DJ3D	106.2	B09DJ3	1				
Manganese		B09DJ3		B09DJ3D	95.9	B09DJ3	J				
Aluminum		B09DJ3	1	B09DJ3L	88.5	B09DJ3	J				
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SDG: B09DJ3	REVIEWER: HMS	DATE: 1/19/94	PAGE_1_OF_1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Barium	บ	B09DJ3	Lab Blank Contamination
Beryllium	U	B09DJ3	Lab Blank Contamination
Copper	U	B09DJ3	Lab Blank Contamination
Magnesium	U	B09DJ3	Lab Blank Contamination
Thallium	ប	B09DJ3	Lab Blank Contamination
Zinc	U	B09DJ3	Lab Blank Contamination
Aluminum	J	B09DJ3	Lab Duplicate
Manganese	J	B09DJ3	Lab Duplicate
Aluminum	1	B09DJ3	ICP Serial Dilution
			
			
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	WELL AND SA	MPLE INFOR	LMATION		SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	WET CHEMISTRY
199-F1-2	B09D66	w	10/29/93	NV	6-5, 6-6, 6-7
	B09D69	W	10/29/93	V	6-8
199-F5-1	B09D70	w	10/28/93	v	6-17, 6-20, 6-21
	B09D73	w	10/28/93	v	6-8
199-F5-4	B09D78	w	11/06/93	NV	6-25, 6-26, 6-27
	B09D81	w	11/06/93	V	6-8
199-F5-6	B09D82 B09D85 B09DG2 B09DG5 B09DH0	w w w w	10/26/93 10/26/93 10/26/93 10/26/93 10/26/93	v v v v	6-28, 6-31, 6-32 6-8 6-28, 6-31, 6-32 6-9 6-44
199-F5-42	B09D86	W	10/30/93	NV	6-5, 6-6, 6-7
	B09D89	W	10/30/93	V	6-8
199-F5-43A	B09D90	w	10/30/93	NV	6-5, 6-6, 6-7
	B09D93	w	10/30/93	V	6-8
199-F5-44	B09D94	w	10/30/93	NV	6-5, 6-6, 6-7
	B09D97	w	10/30/93	V	6-8
199-F5-45	B09D98 B09DB1	₩	11/06/93 11/06/93	NV V	6-25, 6-26, 6-27 6-8
199-F5-46	B09DB2	w	11/06/93	NV	6-33, 6-34, 6-35
	B09DB5	w	11/06/93	V	6-14
199-F5-47	B09DB6 B09DB9 B09DG6 B09DG9 B09DH4 B09DH7	w w w w	10/31/93 10/31/93 10/31/93 10/31/93 10/31/93 10/31/93	V V V V	6-36, 6-39, 6-40 6-8 6-36, 6-39, 6-40 6-9 6-47 6-9
199-F5-48	B09DC0	w	10/31/93	NV	6-36, 6-39
	B09DC3	w	10/31/93	V	6-9
199-F6-1	B09DC4	W	10/30/93	NV	6-5, 6-6, 6-7
	B09DC7	W	10/30/93	V	6-8
199-F7-1	B09DC8	w	10/27/93	NV	6-41, 6-42, 6-43
	B09DD1	w	10/27/93	V	6-9
199-F7-2	B09DD2	w	10/30/93	NV	6-5, 6-6, 6-7
	B09DD5	w	10/30/93	V	6-8

	WELL AND SA	MPLE INFOR	EMATION		SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	WET CHEMISTRY
199-F7-3	B09DD6	w	11/06/93	NV	6-33, 6-34, 6-35
	B09DD9	w	11/06/93	V	6-14
199-F8-2	B09DF0	w	10/31/93	NV	6-36, 6-39, 6-40
	B09DF3	w	10/31/93	V	6-14
199-F8-3	B09DF4	w	10/29/93	NV	6-5, 6-6, 6-7
	B09DF7	w	10/29/93	V	6-9
199-F8-4	B09DF8	w	10/29/93	NV	6-5, 6-6, 6-7
	B09DG1	w	10/29/93	V	6-9
EB-1	B09DH8	W	10/28/93	v	6-17, 6-20, 6-21
	B09DJ1	W	10/28/93	v	6-10
Ë B- 2	B09DJ2 B09DJ5	W W	11/03/93 11/03/93	v V	6-50, 6-53, 6-54 6-10

6.0 WET CHEMISTRY DATA VALIDATION

6.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B09D69	B09D82	B09DB6	B09DH4
B09D70	B09DB5	B09DH0	B09DJ2

6.2 HOLDING TIMES

Analytical holding times for alkalinity, ammonia, nitrogen, chloride, COD, fluoride, hydrazine, nitrate-nitrite, pH, phosphate, specific conductance, sulfate, sulfide, TDS, TOC and TOX were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: 28 days for ammonia-nitrogen, chloride, COD, fluoride, NO3NO2, specific conductance, sulfate and TOC; 14 days for alkalinity and hydrazine; seven days for sulfide, TDS and TOX; 72 hours for pH; and 48 hours for phosphate.

The 72-hour holding time for pH was exceeded and all associated results were flagged "J" in the following samples:

- Sample numbers B09D70 and B09DH8 in SDG No. B09D70.
- --- Sample numbers B09D82 and B09DG2 in SDG No. B09D82.
 - Sample numbers B09DB6 and B09DG6 in SDG No. B09DB6.
 - Sample number B09DJ2 in SDG No. B09DJ2.

The 48-hour holding time for phosphate was exceeded and the associated results were flagged "J" in the following samples:

- Sample number BO9DHO in SDG No. BO9DHO.
- Sample number B09DH4 in SDG No. B09DH4.

The 14-day holding time for hydrazine was exceeded and all associated results were flagged "J" in the following samples:

- All samples in SDG No. B09D69.
- All samples in SDG No. B09DB5.

The twenty-eight day holding time for N03N02 was exceeded and all associated results were qualified as estimates and flagged "J" in the following sample:

Sample number B09DJ2 in SDG No. B09DJ2.

The seven-day holding time for TOX and TDS was exceeded and all associated results were qualified as estimates and flagged "J" in the following sample:

• Sample number B09DH0 in SDG No. B09DH0.

The twenty-eight day holding time for TOC was exceeded and all associated results were qualified as estimates and flagged "J" in the following sample:

Sample number B09DH0 in SDG No. B09DH0.

The 48-hour holding time for phosphate was grossly exceeded and all associated results were rejected and flagged "R" in the following samples:

- Sample numbers B09D70 and B09DH8 in SDG No. B09D70.
- Sample numbers B09D82 and B09DG2 in SDG No. B09D82.
- Sample numbers B09DB6 and B09DG6 in SDG No. B09DB6.
- Sample number B09DJ2 in SDG No. B09DJ2.

Holding times for all other analytes reviewed met QC requirements.

6.3 CALIBRATIONS

6.3.1 Initial Calibration

The following calibration procedures must be conducted:

 At least a blank and three standards were used to establish the ion chromatography, ion selective electrode, spectrophotometer, TOC analyzer and TOX analyzer calibrations prior to sample analysis and the correlation was ≥0.995.

All initial calibration results were acceptable.

6.3.2 Continuing Calibration Verification

All CCV standards must be analyzed with the required frequency or every 20 samples. The percent recoveries must fall within the 90-110% acceptance windows.

All continuing calibration results were acceptable.

6.4 BLANKS

One laboratory preparation blank is analyzed at a frequency of one every 20 samples. All blank results must fall below the CRQL and if not, all associated data <5 times the amount found in the blank are qualified as non-detected "U".

----- All laboratory blank results were acceptable.

6.5 ACCURACY

5.5.1 Matrix Spike Recovery

Matrix spike analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations.

The matrix spike recovery for organic bromide and organic chloride (TOX) fell below the QC limits and were qualified as estimates and flagged "J" for the following:

Sample numbers B09D70 and B09DH8 in SDG No. B09D70.

No matrix spike/matrix spike duplicate analyses were performed for organic iodide (TOX). All associated results were qualified as estimates and flagged "J".

All other matrix spike results were acceptable.

6.5.2 Laboratory Control Sample Recovery

The LCS monitors the overall performance of the analysis, including the sample preparation. An LCS should be prepared (e.g., digested or distilled) and analyzed with every group of samples which have been prepared together. The performance criteria for aqueous LCS percent recovery is 80 to 120 percent. The performance criteria for solid LCS samples are established through interlaboratory studies coordinated by a certifying agency (e.g., EPA or an independent commercial supplier).

All LCS results were found to be acceptable.

6.6 PRECISION

Analytical duplicate sample analyses are used to measure laboratory precision and sample homogeneity. Field duplicate analyses are used to measure both the laboratory and the field sampling procedure precision.

The precision RPD for organic bromide and organic chloride (TOX) fell below the QC limits and were qualified as estimates and flagged "J" in the following samples:

• Sample numbers B09D70 and B09DH8 in SDG No. B09D70.

All other duplicate analyses results were acceptable for this data.

6.7 ANALYTE QUANTITATION AND DETECTION LIMITS

Sample results and reported detection limits were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. In addition, the reviewer verified that the results fell within the linear range of the instrument.

6.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument continuing calibration information and QC data indicate that instrument performance was adequate for most analyses. Holding times were exceeded for pH, phosphate and hydrazine, TOX, TOC, TDS and NO3NO2 in several samples and grossly exceeded for phosphate analyses in three data packages. The accuracy and precision results for organic bromide and organic chloride (TOX) did not meet QC limits in one data package. All associated results were qualified as estimates and flagged "J". Estimated results are usable for limited purposes only. All other validated results are considered accurate within the standard error associated with the methods.

Project: WESTINGH	OUSE-HA	NFORD		1															
Laboratory: TMA				1															
Case	SDG: B	09D66		1															
Sample Number		B09D66	;	B09D86	}	B09D90)	B09094		B09DC4		B09DD2	<u> </u>	B09DF4		B09DF8		T	
Location		199-F1	-2	199-F5	-42	199-F5	-43A	199-F5	-44	199-F6-		199-F7-		199-F8		199-F8		 	
Remarks		NV		NV		NV		NV		NV		NV		NV		NV	·	 	
Sample Date	** **	10/29/9	3	10/30/9	3	10/30/9	3	10/30/9	3	10/30/93	3	10/30/93	3	10/29/93	3	10/29/93	3	 	
Analytes	Method	Result	Q	Result	Q	Result	Q	Recult	Q	Result	O	Result	Q	Result	Q	Result	Q	Result	IQ
Chloride	300.0	10.9		0.9	Γ	1.2	1	3.0	Г	1.1		14.3		7.3		10	Г	<u> </u>	1
Fluoride	300.0	0.7		0.1	Π	0.1		0.1	Ī	0.1		0.3		0.2	<u> </u>	0.3		1	1
Phosphate	300.0	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	Ū	0.4	Ü	1	1
pH (pH units)	9040	7.7		7.3		7.7		7.6		7.9		7.8	П	7.2	Π	7.9	T	1	1
Sulfate	300.0	52		13	Π	14	П	21	Г	15	Г	59	П	55	Γ	55	 	T	1
Alkalinity	310.1	163		86		83		78		81		210		496		202		1	1
TDS	160.1	348		142		138		159		176		473		797		519		1	†
Sulfide	9030	1.0	υ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	Ū	1.0	U	1.0	U	<u> </u>	\top
Ammonia, as N	350.3	0.05		0.05	U	0.05	U	0.05	U	0.05	U	0.05	Ū	0.05	U	0.05	Ū	1	1
COD	410.1	30	U	30	U	30	U	30	U	30	U.	30	Ü	30	U	30	Ū		T
Elect. Conductivity	9050	490		197		187		224		194		652		1130	Π	704	1		1
(umhos/cm)											Γ				Γ	1	T		T
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Laboratory: TMA				1												1			
Case	SDG: B	09D66		1															
Sample Number		B09D66	<u> </u>	B09D86	-	B09D90		B09D94		B09DC4	,	B09DD2		B09DF4		B09DF8			
Location		199-F1	-2	199-F5-	-42	199-F5-	-43/	199-F5-	-44	199-F6-	-1	199-F7-	.2	199-F8-	-3	199-F8-	4		
Remarks		NV		NV		NV		NV		NV		NV		NV		NV			
Sample Date		10/29/9		10/30/93		10/30/98		10/30/93		10/30/93		10/30/93		10/29/93		10/29/93	}		
Analytes	Method			Result		Result		Result			Q	1	Q	Result	Q		Q	Result	Q
TOC	415.1	1.0		1.0		1.0		1.0			U	1.4		4.0		1.6			
Organic Bromide	9022				U		U		U		U	0.01		0.06	<u> </u>	0.03	<u> </u>		
Organic Chioride	9022	0.01	U		U		U		U		U		U	0.01	U		U]	
Organic lodide	9022	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01		0.01	U		
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Case	SUG: BUSUOD									
Sample Number		B09C)66	B09D86	B09C)90	B09094	B090C4	B09DD2	B09DF4	B-PG608	
Location		199-F1-2	199-F5-42		199-F5-43A 189-F5-44	199-F6-1	199-F7-2	199-F8-3	199-F8-4	
Remerks		V	~	NV	V		N	V	Ş	
Sample Date	į	10/29/93	10/30/93	10/30/93	10/30/93	10/30/93	10/30/93	10/29/93	10/29/93	
Analytes	Method	Result O	Result Q		Result Q		_	Result Q		Picksuit
ZONEON	415.1	4.86	0.38	0.76	2.32	0.57	16.0	33 30	24.4	
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WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg N/L)

Project: WESTINGHOUSE-HANFORD Laboratory: TMA

WHC-SD-EN-TI-238, Rev.

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Laboratory:	Data/Cherr	1									•									
Case		SDG: B	09D69]															
Sample Nur	mber		B09069		B09D73	·	B09D81		B09D85		B09089		B09D93		B09D97		809DB1]	B09D89	•
Location			199-F1-	-2	199-F5-	-1	199-F5-	4	199-F5-	6	199-F5-	-42	199-F5-	434	199-F5-	-44	199-F5	-45	199-F5	
Remarks																	 	-		
Sample Date			10/29/93		10/28/93		11/06/93	3	10/26/93)	10/30/93	3	10/30/93	3	10/30/93	3	11/06/9	3	10/31/9	3
Analytes		Method										Q	Result	Q	Result	Q	Result	Q	Result	Q
Hydrazine		D1386	3.0	W	3.0	W	3.0	W	3.0	W	3.0	w	3.0	W	3.0	W	3.0	w	3.0	w
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Sample Number		B09DC		B09DC7		B09DD		B09005		B09DF7		B09DG1		B09DG		B09DG		В09ОН	
Location		1 99-F 5	-48	199-F6-	<u>·1</u>	199-F7	<u>·1</u>	199-F7-	-2	199-F8-	<u> 3</u>	199-F8	-4	199-F5	-6	199-F5	<u>-47</u>	199-F5	-47
Remarks		1				<u> </u>			_			 _		DUP		DUP		SPLIT	
Sample Date		10/31/9		10/30/93		10/27/9		10/30/93		10/29/93		10/29/9:		10/26/9		10/31/9		10/31/9	
Analytes	Method			Recult							Q		Q		a			Result	Q
Hydrazine	D1386	3.0	W	3.0	<u> W</u>	3.0	W	3.0	W	3.0	w	3.0	IJ	3.0	m	3.0	W	3.0	W
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Case	SDG: B	00000		ł															
Sample Number		B09DJ1		B090J5				T		1		· · · · ·						,	
Location		EB-1				 				 				<u> </u>				 	
Remarks		EB-1		EB-2				<u> </u>								.		1	
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Sample Date	12.2.2.2.2	10/28/93		11/03/93			1-	<u> </u>	1		7-		-	<u> </u>					
Analytes	Method					Result	0	Result	10	Result	a	Result	0	Result	<u>la</u>	Result	Q	Result	Q
Hydrazine	D1385	3.0	W	3.0	m			<u> </u>	<u> </u>		ــــــــــــــــــــــــــــــــــــــ	ļ	<u> </u>		丄	<u> </u>	_		丄
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HOLDING TIME SUMMARY

SDG: B09D69	REVIEWER:	LM	1	DATE: 1/21/9	14	PAGE_	_OF <u>2</u>
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09D69	Hydrazine	10/27/93		11/23/93	, , , , , , , , , , , , , , , , , , , ,	14	J
B09D73	Hydrazine	10/28/93		11/23/93		14	J
B09D81	Hydrazine	11/06/93		11/23/93		14	1
B09D85	Hydrazine	10/26/93		11/23/93		14	J
B09D89	Hydrazine	10/30/93		11/23/93		14	. 1
B09D93	Hydrazine	10/30/93		11/23/93		14	J
B09D97	Hydrazine	10/30/93		11/23/93		14	J
B09DB1	Hydrazine	11/06/93		11/23/93		14	J
B09DB9	Hydrazine	10/31/93		11/23/93	,	14	J
B09DC3	Hydrazine	10/31/93		11/23/93		14	1
B09DC7	Hydrazine	10/30/93		11/23/93		14	J
B09DD1	Hydrazine	10/27/93		11/23/93		14	J
B09DD5	Hydrazine	10/30/93		11/23/93		14	J
B09DF7	Hydrazine	10/29/93		11/23/93		14	J
B09DG1	Hydrazine	10/29/93		11/23/93		14	J
B09DG5	Hydrazine	10/26/93		11/23/93		14	J

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HOLDING TIME SUMMARY

SDG: B09D69	REVIEWER:	LM		DATE: 1/21/9)4 	PAGE_2	OF 2
COMMENTS:			,				
FIELD SAMPLE	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09DG9	Hydrazine	10/31/93		11/23/93		14	J
B09DH7	Hydrazine	10/31/93	ļ	11/23/93		14	J ·
B09DJ1	Hydrazine	10/28/93		11/23/93		14	J
B09DJ5	Hydrazine	11/03/93		11/23/93		14	J
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SDG: B09D69	REVIEWER: LM	DATE: 1/21/94	PAGE_1_OF_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Hydrazine	1	All	Holding Times Exceeded
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Project: WESTING Laboratory: Data				1															
	SDG: B	0000E		Į.															
Case	BUG: D			00000		loogice.				т				т		1		т	
Sample Number		B09DB5		B09DD9		B09DF3								 		 		 	
Location		190-F5-	-46	199-F7-	·3	199-F8-	.2			<u> </u>		<u> </u>		 		 		 	
Remarks	, _ , _ , _ , _ , _ , _ , _ , _ , _ , _													L		 		 	
Sample Date	10.0	11/06/93	3	11/06/93		10/31/93		D	16	S	16.	D	10	- M	10	Descrip	T.	Danish	ᄍ
Analytes	Method					Result			<u>lu</u>	Hesuk	Q	Result	0	Result	Q	MOSUN	ᄤ	Result	Q
Hydrazine	D1385	3.0	m	3.0	W	3.0	m		!	<u> </u>	<u> </u>				 _	 	╁—	┞	╀
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HOLDING TIME SUMMARY

SDG: B09DB5	REVIEWER:	LM		DATE: 1/21/9	14 ·	PAGE_	_OF_1_
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09DB5	Hydrazine	11/06/93		11/23/93		14	J
B09DD9	Hydrazine	11/06/93		11/23/93		14	J
B09DF3	Hydrazine	10/31/93		11/23/93	1	14	1
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DATA QUALIFICATION SUMMARY

SDG: B09DB5	REVIEWER: LM	DATE: 1/21/94	PAGE 1_OF_1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Hydrazine	J	B09DB5, B09DD9, B09DF3	Holding Times Exceeded
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	199-F5	-1	EB-1		<u> </u>	·							†	-			<u> </u>	
			EB		<u> </u>						<u> </u>		†		<u> </u>		 	
	10/28/9:	3	10/28/93	3									†		1		<u> </u>	
Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
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	Method 300.0 300.0 300.0 300.0 300.0 310.1 160.1 9030 350.3 410.1	199-F5 10/28/93 Method Result 300.0 2.9 300.0 0.1 300.0 0.4 9040 7.7 300.0 37 310.1 101 160.1 196 9030 1.0 350.3 0.05 410.1 30	SDG: B09D70 B09D70 199-F5-1 10/28/93 Method Result Q 300.0 2.9 300.0 0.1 300.0 0.4 R 9040 7.7 J 300.0 37 310.1 101 160.1 196 9030 1.0 U 350.3 0.05 U 410.1 30 U	SDG: B09D70 B09DH6 199-F5-1 EB-1 EB 10/28/93 10/28/9	SDG: B09D70 B09DH8 199-F5-1 EB-1 EB 10/28/93 10/28/93 10/28/93 Method Result Q Result Q 300.0 2.9 0.3 300.0 0.1 0.1 U 300.0 0.4 R 0.4 R 9040 7.7 J 5.3 J 300.0 37 1.0 U 310.1 101 8.0 160.1 196 5.0 U 9030 1.0 U 1.0 U 350.3 0.06 U 0.05 U 410.1 30 U 30 U	SDG: B09D70 B09DH8 199-F5-1 EB-1 EB 10/28/93 10/28/93 Method Result Q Re	SDG: B09D70 B09DH8 199-F5-1 EB-1 EB	SDG: B09D70 B09DH8 199-F5-1 EB-1 EB	SDG: B09D70 B09DH8 199-F5-1 EB-1 EB	SDG: B09D70 B09DH8 199-F5-1 EB-1	SDG: B09D70 B09DH8 199-F5-1 EB-1	SDG: B09D70 B09DH8 199-F5-1 EB-1	SDG: B09D70 B09DH8 199-F5-1 EB-1	SDG: B09D70 B09DH8	SDG: B09D70 B09DH8	SDG: B09D70 B09DH8	SDG: B09D70 B09DH8	SDG: B09D70 B09DH8

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HOLDING TIME SUMMARY

SDG: B09D70	REVIEWER:	SC		DATE: 1/18/9		PAGE_1	
COMMENTS:		_					
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09D70	рН	10/28/93		11/02/93		3	J
B09DH8	рН	10/28/93		11/02/93		3	J
B09D70	Phosphate	10/28/93		11/11/93		2	R
B09DH8	Phosphate	10/28/93		11/11/93		2	R
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DATA QUALIFICATION SUMMARY

SDG: B09D70	REVIEWER: SC	DATE: 1/18/94	PAGE_1_OF_1
COMMENTS:	<u>,!</u>		
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
рH	J	B09D70, B09DH8	Holding Times Exceeded
Phosphate	R	B09D70, B09DH8	Holding Times Grossly Exceeded
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Project: WESTINGHOUSE-HANFORD Laboratory: TMA				┨															
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Case																			
Sample Number		B09070		В09ОН8	<u> </u>	<u> </u>		<u> </u>								ļ		<u> </u>	
Location	·	199-F5	-1	EB-1				<u> </u>]	
Remarks				EB				<u> </u>											
Sample Date		10/28/93		10/28/93															
Analytes			Q	Result		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
N03N02	353.2	3.04		0.25	U		Γ	T	Γ		Π					1	7		Т
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Project: WESTINGH	KOUSE-HA	NFORD		1															
Laboratory: TMA				1						. '									
Case				1															
Sample Number		B09070)	B09DH8	<u> </u>									T					
Location		199-F5	-1	EB-1		1								<u> </u>				1	
Remarks				EB		1												1	
Sample Date		10/28/93	3	10/28/93	3			1				1							
Analytes	Method	Result		Result		Plesuit	a	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
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Organic Bromide	9022	0.01	w	0.01	IJ							Ī							
Organic Chloride	9022		UJ		IJ														T
Organic lodide	9022	0.01	UJ	0.01	W														
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EB = Equipment Blank

ACCURACY DATA SUMMARY

SDG: B09D70	REVIEWER: SC	DATE: 1/18/94	PAGE_	1_OF_1_
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B09DH8MS	Organic Chloride	28%	B09D70, B09DH8	J
B09DH8MS	Organic Bromide	28%	B09D70, B09DH8	1

PRECISION DATA SUMMARY

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SDG: B09D70	REVIEWER: SC		DATE: 1/18/94		PAGE_1_OF	1
COMMENTS:					1	
COMPOUND		SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
Organic Chloride		B09DH8MS	B09DH8MSD	120	B09D70, B09DH8	J
Organic Bromide		B09DH8MS	B09DH8MSD	117.5	B09D70, B09DH8	J
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SDG: BOODTO	DEVIEWED. CC	DATE: 1/19/04	DAGE 1 CE 1
SDG: B09D70	REVIEWER: SC	DATE: 1/18/94	PAGE_1_OF_1_
COMMENTS:	<u></u>		
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Organic Bromide	1	B09D70, B09DH8	Matrix Spike/Precision
Organic Chloride	1	B09D70, B09DH8	Matrix Spike/Precision
Organic Iodide	1	B09D70, B09DH8	No Matrix Spike, Matrix Spike Duplicate Analyses Not Performed
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WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

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Project: WESTINGHO	OUSE-HA	NFORD		1															
Laboratory: TMA				1								•							
Case	SDG: B	09D78		1															
Sample Number		B09078		B09D98								I							
Location		199-F5	-4	199-F5-	-45	I													
Remarks		NV		NV				<u> </u>				1		T					
Sample Date		11/06/93		11/06/93								I				i			
Analytes	Method	Result	Q		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloride	300.0	34.4		12.2	L						<u> </u>			L	L		<u> </u>		
Fluoride	300.0	0.2		0.2							L						<u> </u>		
Phosphate	300.0	0.4	U	0.4	U						Ľ								
pH (pH units)	9040	7.8		7.9				I											
Sulfate	300.0	99		40			Γ												
Alkalinity	310.1	205		138															
TD\$	160.1	538		287															
Sulfide	9030	1.0	U	1.0	U	1												<u> </u>	
Ammonia, as N	350.3	0.05	Ū	0.05	U					1				Ϊ	Π		\mathbf{L}	<u> </u>	T
COD	410.1	30	U	30	U		T		П	1			Π					<u> </u>	T
Elect. Conductivity	9050	850		450			1												
(umhos/cm)						1													I^{-}
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Project: WESTIN	GHOUSE-HA	NFORD		1															
Laboratory: TMA				1															
Case	SDG: B	09D78		1															
Sample Number		B09078		B09098															
Location		199-F5	4	199-F5-	-45														
Remarks		NV		NV						<u> </u>									
Sample Date		11/06/93		11/06/93															
Analytes	Method	Recult	Q	Recult	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	a
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WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

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Project: WESTINGH	OUSE-HA	NFORD		1							. :								
Laboratory: TMA				1							10								
Case	SDG: B	09D78		1			:												
Sample Number		B09D78	3	B09D98		T		T		T	-		,		-			T	
Location		199-F5	-4	199-F5	-45			T			-								
Remarks		NV		NV				1											
Sample Date		11/06/9	3	11/06/93	3			Ì								1		ļ —	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	<u> </u>	Result	Q	Result	a	Result	Q	Result	Q
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Organic Bromide	9022	0.01		0.01	Ū						1								1
Organic Chloride	9022	0.01	U	0.01	Ü						1				Ī	1			1
Organic lodide	9022	0.01	U	0.01	U						1						i		1
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Project: WESTINGHO	DUSE-HA	NFORD]															
Laboratory: TMA				1															
Case	SDG: B	09D82		1															
Sample Number		B09082		B09DG2	?					T		T		1					
Location		199-F5	-6	199-F5-	·6			1										i	
Remarks				DUP								<u> </u>							
Sample Date		10/26/9		10/26/93															
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q.	Result	Q	Result	Q
Chloride	300.0	10.8		11.3											Π		Γ		
Fluoride	300.0	0.2		0.1						I	<u> </u>				Π		Γ_{-}		T
Phosphate	300.0	0.4	R	0.4							Γ								
pH (pH units)	9040	7.5	J	7.6	J		Π				Π				Π.				
Sulfate	300.0	48		48												1			
TDS	160.1	257	Ţ	243											Г		Π	I	7
Sulfide	9030	1.0		1.0	U									T					
Ammonia, as N	350.3			0.05	U				T		Ι				Π		Γ		
COD	410.1	30		30	Ü		I^-		Ī										\Box
Elect. Conductivity	9050	376	}	385										ľ					\mathbf{I}_{-}
(umhos/cm)									Ι						L				<u> </u>
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SDG: B09D82	REVIEWER:	SC		DATE: 1/18/9) <u>4</u>	PAGE_	OF1_
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09D82	Phosphate	10/26/93		11/11/93		2	R
B09DG2	Phosphate	10/26/93		11/11/93		2	R
B09D82	pН	10/26/93		11/01/93		3	J
B09DG2	рН	10/26/93		11/01/93		3	J
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SDG: B09D82	REVIEWER: SC	DATE: 1/18/94	PAGE_1_OF_1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Phosphate	R	B09D82, B09DG2	Holding Times Grossly Exceeded
pН	1	B09D82, B09DG2	Holding Times Exceeded
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Project: WESTINGH	OUSE-HA	NEORO		ו ר															
Laboratory: TMA	3332 733	0.0		1															
Case	SDG: B	09D82		1															
Sample Number		B09D82		B09DG2	2	T				<u> </u>		 				1		Г	
Location		199-F5		199-F5-				†		· · · · · · ·						 -			
Remarks	-			DUP.				<u> </u>	•			 				 -			
Sample Date		10/26/93	3	10/26/93	3	1				1						 		!	
Analytes	Method	Result			Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
TOC	415.1	1.0	U	1.0			Г				1		1				1-		\top
Organic Bromide	9022		U	0.01			Г		Π	I.	Ι.		Π				1		1
Organic Chioride	9022		Ü	0.01					Π		ľ					T	T		1
Organic lodide	9022	0.01	U	0.01	Ü											Ī	T	1	1
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Project: WESTING	SHOUSE-HA	NFORD]															
Laboratory: TMA		-		1								I							
Case	SDG: B	09D82		1								!							
Sample Number		B09D82		B09DG2	?			·				T				T		T	
Location		199-F5-		199-F5-				 				i	-			†		1	
Remarks	,			DUP									·			1			
Sample Date		10/26/93	3	10/26/93	3	1										†			
Analytes	Method			Result		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
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WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

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Project: WESTINGHO Laboratory: TMA				1															
Case	SDG: B	09DB2		1															
Sample Number		B09DB2		B09DD6	-			T		T				T		γ		Τ	
Location				199-F7				 		1						<u> </u>		 	
Remarks		NV		NV	<u> </u>	 		 								 			
Sample Date		11/06/93	3	11/06/93	3	1		<u> </u>						†		 		 	
	Method	Result	Q		Q	Result	Q	Result	a	Result	Q	Result	Q	Result	TQ	Result	Q	Result	Q
Chloride	300.0	13.6		28.2				1					1				1	 	1
Fluoride	300.0	0.2	Ī	0.5	1	1		1			1.	1	1	<u> </u>			† <u> </u>	1	1
Phosphate Phosphate	300.0	0.4	U	0.4	Ū		İ	1			· · · · ·	†	✝			†	1		丅
pH (pH units)	9040	7.7		7.5			·	1	T -		1	ĵ	Τ		T	1	1		\top
Sulfate	300.0	52		92		<u> </u>	Γ		1	1	1					1	\top		\top
Alkalinity	310.1	174		202				1	1		1		1		1	1	1		1
TDS	160.1	358	П	565	1				1		1		1	<u> </u>		1		1	\top
Sulfide	9030	1.0	U	1.0	U			Ī	1			1	1	1			1		\top
Ammonia, as N	350.3	0.05	U	0.05	U				1		1		1	1				1	1
COD	410.1	30	U	30	U			1			1		1	1	1-		1	1	1
Specific Conductance	9060	550	Г	872			Г		1	1			1				1		\top
(umhos/cm)					1		1		1				1			1	\top		\top
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Project: WESTING	HOUSE-HA	NFORD		1															
Laboratory: TMA				1															
Case	SDG: B	09DB2		1															
Sample Number	,	B09082	2	B09DD6	;									Ι				T	
Location		199-F5	-46	199-F7-	-3	1				1 '''						 		-	
Remarks		NV		NV												1			
Sample Date		11/06/93		11/06/93	3			-		1				1		 		 	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	TQ	Result	Q	Result	Q	Result	TQ	Result	Q
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WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

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Project: WESTINGH	OUSE-HA	NFORD		1															
Laboratory: TMA]															
Case	SDG: B																		
Sample Number		B09DB2		B09DD6						I				1					
Location			-46	199-F7-	-3									Ī				T	
Remarks		NV		NV										1					
Sample Date	·	11/06/9	3	11/06/93	3									<u> </u>	-	1			
Analytes	Method	Result				Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
TOC	415.1	1.2		2.3			I						1						1
Organic Bromide	9022	0.01	U	0.01	U												1		1
Organic Chloride	9022	0.01	Ū	0.01	U	T			Ì		1		1				1		\top
Organic lodide	9022	0.01	Ū	0.01	Ū	T	T		T		T	T	Ī		T				\top
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Project: WESTINGHOUSE-HANFORD Laboratory: TMA

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Case	SDG: B	09DB6]															
Sample Number		B09DB6	;	B09DC0)	B09DF0		B09DG6	}								**	T	
Location		199-F5-	47	199-F5-	-48	199-F8-	-2	199-F5-	-47										
Remarks				NV		NV		DUP											
Sample Date	•	10/31/93	3	10/31/93	3	10/31/93	3	10/31/93				1		T					_
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	C
Chloride	300.0	33.7		22.8	I	14.5		33.5	Γ										Γ
Fluoride	300.0	0.2		0.2		0.2		0.2		1				1					Τ
Phosphate	300.0	0.4	R	0.4	Ū	0.4	U	0.4	R									I	Τ
pH (pH units)	9040	7.7	J	7.8	Ι.	7.9	I	7.8	J										Ι
Sulfate	300.0	95		69	Ι	81		96					<u> </u>	l	I			.]	Ι
Alkalinity	310.1	210		195		257		211									L		Ι
TDS	160.1	590		496		578		576							l				Ι
Sulfide	9030	1.0	U	1.0	U	1.0	U	1.0		L	I							L	
Ammonia, as N	350.3	0.05	U	0.05	U	0.05	U		U										Ι
COD	410.1	30	U	30	U	30	U	30	U										
Elect. Conductivity	9050	810		660		785		808		Ĭ							_	1	\perp
(umhos/cm)			Π				I				<u> </u>]						<u> </u>	L
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SDG: B09DB6	REVIEWER:	SC		DATE: 1/20/9)4	PAGE_1	_OF_1_
COMMENTS:			1				
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09DB6	рН	10/31/93		11/06/93		3	J
B09DB6	рН	10/31/93		11/06/93		3	J
B09DB6	Phosphate	10/31/93	'	11/18/93		2	R
B09DG6	Phosphate	10/31/93	'	11/18/93		2	R
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SDG: B09DB6	REVIEWER: SC	DATE: 1/20/94	PAGE_1_OF_1_
COMMENTS:		<u> </u>	· · · · · · · · · · · · · · · · · · ·
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
рН	1	B09DB6, B09DG6	Holding Times Exceeded
Phosphate	R	B09DB6, B09DG6	Holding Times Grossly Exceeded
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WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

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Project: WESTINGH	OUSE-HA	NFORD		1															
Laboratory: TMA				1															
Case	SDG: B	09DB6		1															
Sample Number		B09DB6	ì	B09DC0)	B09DF0)	B09DG6	<u> </u>	1				1		Τ		Τ	
Location	-	199-F5				199-F8		199-F5-		 						 		 	
Remarks				NV		NV		DUP		t				 		 		 	
Sample Date		10/31/9	3	10/31/9	3	10/31/9	3	10/31/93	3			 		 		† ···		 	
Analytes	Method			Result						Result	Q	Regult	Q	Result	TQ:	Result	Q	Result	To
TOC	415.1	2.2	Г	2.3		2.3	1	2.0					1-	 	1		 -		+
Organic Bromide	9022	0.01		0.01		0.05	T	0.01	$oxed{T}$				1		1		1	1	1
Organic Chloride	9022	0.01	U	0.01	U	0.01	Ū	0.01	U				T	1	T		T	1	1
Organic lodide	9022	0.01	Ü	0.01	Ū	0.01	Ū	0.01	U		Γ	1	Τ		Τ		T	i	1
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WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX; (mg N/L)

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Laboratory: YMA								ē				•					-			
Case	SDG: B	B09086						-				- !	l	ı		ı	<u>-</u> 			
Sample Number		B090B6		B09DC0	-	B09DF0		B090G6	8			-	Ì	\dashv			-			
Location		1 89- F5-47		199-F5-48	&	199-F8-2	'n	199-F5-47	47		ł			┥	:		-			
Remarks				۸N		Z		달				Ť		+						
Sample Date		10/31/93		10/31/93		10/31/9	9	10/31/9	မ	7		1		┥						1
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SDG: B	09DC8		1															
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	199-F7	-1			†				†		 		 		t			
	NV		<u> </u>								<u> </u>		t		<u> </u>		 	
•	10/27/93	3	<u> </u>												 		 	
Method	Result	Q	Recult	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	IQ	Result	Q
300.0	15.1			1		T	1	Т		1		1		1	† -	1		1-
300.0	0.7				Î		 				 	1		†	1	十一	 	1
300.0	0.4	U		1	1		1					İ		1	†	1		+
9040	7.6		1		1	1	1	T	T	1	1	T		1	1	†	1	1
300.0	67					T	1	Г	<u> </u>	T-	i —	1		†		1		1
310.1	187	Г		Ī		Î		T		T^{-}			†	1			1	1
160.1	466			1				Τ		T		1		İ		1	1	1
9030	1.0	U	1	1		Т	1			1		 	1	1		1-		1
350.3	0.05	Ū			1				1	1	1	 	1	1	<u> </u>			1
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	Method 300.0 300.0 300.0 300.0 310.1 160.1 9030 350.3	199-F7- NV 10/27/93 Method Result 300.0 15.1 300.0 0.7 300.0 0.4 9040 7.6 300.0 67 310.1 187 160.1 466 9030 1.0 350.3 0.05 410.1 30	SDG: B09DC8 B09DC8 199-F7-1 NV 10/27/93 Method Result Q 300.0 15.1 300.0 0.7 300.0 0.4 U 9040 7.6 300.0 67 310.1 187 160.1 466 9030 1.0 U 350.3 0.05 U 410.1 30 U	SDG: B09DC8 B09DC8 199-F7-1 NV 10/27/93 Result Q Result 300.0 15.1 300.0 0.7 300.0 0.4 U 9040 7.6 310.1 187 160.1 466 9030 1.0 U 350.3 0.05 U 410.1 30 U	SDG: B09DC8 B09DC8 199-F7-1 NV 10/27/93 Method Result Q Result Q 300.0 15.1 300.0 0.7 300.0 0.7 300.0 67 310.1 187 160.1 466 9030 1.0 U 350.3 0.05 U 410.1 30 U	SDG: B09DC8 B09DC8 199-F7-1 NV 10/27/93 Method Result Q Result	SDG: B09DC8 B09DC8 199-F7-1	SDG: B09DC8 B09DC8 199-F7-1	SDG: B09DC8 B09DC8 199-F7-1	SDG: B09DC8 B09DC8 199-F7-1	SDG: B09DC8 B09DC8 199-F7-1	SDG: B09DC8 199-F7-1	SDG: B09DC8 199-F7-1	SDG: B09DC8 B09DC8 199-F7-1	SDG: B09DC8 B09DC8 SD9-F7-1	SDG: B09DC8 SDG: B09DC8	SDG: B09DC8	SDG: B09DC8 199-F7-1

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Sample Number B09DC8	Laboratory: IMA	Laboratory: TMA		<u> </u>											
199-F7-1 199-F7-1 10/27/93 Method Result Q	Case	SDG: B	39DC8							1					
193-F7-1 N/V	Sample Number		BO9DC8		 			-			-				
NV 10/27/93	Location		189-77-1	+	<u> </u>			+			 				
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MHC-SD-EM-TI-238, Rev. 0

Project: WESTINGH	OUSE-HA	NFORD		1															
Laboratory: TMA		<u></u>		1															
Case	SDG: B	09DC8		1															
Sample Number		B09DC8	3	<u> </u>		T		Τ		ľ		F		T		T			
Location		199-F7		†				†						 				 	
Remarks		NV												<u> </u>		<u> </u>		—	
Sample Date		10/27/9	3											 				 	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Recult	TQ	Recult	Q
TOC	415.1	1.3	1		1		\top	1	1				 	1	1		Τ-		十
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Organic Chloride	9022	0.01	U							T	1	†			Ī		1		1
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Project: WESTINGHO		MLOHD		ł															
Laboratory: Roy F. We				1															
Case	SDG: B			 				γ			···	,				r			
Sample Number		B09DH0				 				ļ									
Location		199-F5-	-6	1				<u> </u>		1				.		.			
Remarks		SPLIT		<u> </u>		ļ		<u> </u>		ļ		<u> </u>				ļ		l	
Sample Date		10/26/93		<u> </u>	1 	<u> </u>	T=-	<u> </u>	-	<u></u>	T-2	<u> </u>	1						-
Analytes	Method		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Alkalinity	310.1	110	L			ļ	_	↓	ļ		↓_	<u> </u>	╙		!		↓_		4_
Chloride	300.0	11.0	<u> </u>		<u> </u>	<u> </u>		<u> </u>	↓	<u> </u>	↓	↓			ļ		╄		┷
Fluoride	300.0	0.50		ļ	<u> </u>	ļ	<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>		╙		⊥_
COD	410.4	5.0						<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>							
Phosphate	300.0	0.25	W	1			$oxed{oxed}$				1_	ļ	_		_		_		
Sulfate	300.0	52.4		<u></u>		<u></u>	$oxed{oxed}$					<u> </u>					丄		
N03N02 (mg N/L)	353.2	6.6										<u> </u>	1						
Ammonia, as N	350.3	0.10]		I		·					1				$oldsymbol{ol}}}}}}}}}}}}}}}}}}$		1
TOC	415.1	0.78	J				Π		L				Ι			<u> </u>	<u> </u>	<u> </u>	
pH (pH units)	150.1	7.6	Г						T		Ι						I	L	
Sulfide	376.2	0.10	U		1		Π	ŀ	П		T		\Box				Γ		
TDS	160.1	271	J				1		T								Τ	I .	
TOX	9020.1	25.5	J		1												T		T
Specific Conductance	120.1	324					П	1.	T				T		T		T		
(umhos/cm)						1		1			Т		Τ				Τ		
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SDG: B09DH0	REVIEWER:	SC		DATE: 1/19/9	14	PAGE_	_OF_1_
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
во9DH0	тох	10/26/93	1	11/03/93		7	J
B09DH0	тос	10/26/93		11/17/93		7	J
B09DH0	TDS	10/26/93		11/03/93		7	J
B09DH0	Phosphate	10/26/93		11/08/93		2	J
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SDG: B09DH0	REVIEWER: SC	DATE: 1/19/94	PAGE_1_OF_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
тох	J	B09DH0	Holding Times Exceeded
TOC	J	В09DH0	Holding Times Exceeded
TDS	1	B09DH0	Holding Times Exceeded
Phosphate	1	B09DH0	Holding Times Exceeded
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Project: WESTINGHO Laboratory: Roy F. We				1															
Case	SDG: B	005314												•					
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Sample Number						 		∤ -		 		 		1		 		 	
Location		199-F5	-47	ļ				├ ──		.		ļ		ļ		 		ļ	
Remarks		SPLIT				<u> </u>				<u> </u>				<u> </u>		↓		 	
Sample Date	100 11	10/31/93		0	TA .	D	TA	 	1	0	TA	D 4	TA-	D	10	Result	TA .		
Analytes	Method		u	Result	Q	Flesuit	Q	Result	u	Hesur	a	Result	Q	Result	Q	Hesuk	Q	Result	Q
Alkalinity	310.1	210	 	ļ	┡	 		 	├-	<u> </u>	╆	╂	├ -	 	-	 	╁—	 	
Chloride	300.0	33.7	 	ļ	┡	ļ	┡		┞		╁	├	╄~		 	 	╀		-
Fluoride	300.0	0.50			—	ļ	⊢	 	╄		-	ļ	ــ		╄	 	-		
COD	410.1	5.0	1	<u> </u>	 -	 	\vdash	 	⊢	 	╁	 	 		╀-	ļ	↓		+-
Phosphate	300.0	0.25	lm	<u> </u>	ļ	<u> </u>	 	<u> </u>			├ ─	 -	 	<u> </u>		 		<u> </u>	4-
Sulfate	300.0	100	 	ļ	L		↓	↓	 	 	╄	 _	├ -		╄	├ ──		 -	+-
N03N02 (mg N/L)	353.2	20.8	ļ.,	<u>-</u>	<u> </u>	 	1	 	_		₩		↓_	ļ	₩	 	╄	ļ	+
Ammonia, as N	350.3	0.10	U	<u> </u>	ļ	 	 	 _	╙		-	 	↓_		_		╄	 	╀
тос	415.1	1.7	_		ļ	ļ <u>.</u>	↓	 	╙	ļ	<u> </u>	<u> </u>	┞-		↓	ļ	╄	ļ	
pH (pH units)	150.1	8.2	L_	L	<u> </u>	<u> </u>	L.	<u> </u>	ــــــ	<u> </u>	 	ļ	┞-		ļ	ļ	↓_	ļ	ᆚ_
Sulfide	376.2	0.10	U		<u> </u>		_		<u> </u>	<u> </u>	1_	<u> </u>	Ļ _		<u> </u>	ļ <u>.</u>	ـــــ	↓	
TDS	160.2	253	$oldsymbol{ol}}}}}}}}}}}}}}}}}}$		<u> </u>			<u> </u>			1	ļ	<u> </u>		1	<u> </u>	↓_		_
TOX	9020	20.0	U	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	 _	<u> </u>	┞	<u> </u>	1	<u> </u>	1—	1	丄
Specific Conductance	120.1	720						<u> </u>	$oxed{oxed}$		<u> </u>		↓		上	↓		ļ	
(umhos/cm)	'	L						<u> </u>		•	<u> </u>	ļ					<u> </u>		
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SDG: B09DH4	REVIEWER:	SC		DATE: 1/18/9	<u> </u>	PAGE_1	_OF_1_
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09DH4	Phosphate	10/31/93		11/05/93		2	l
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SDG: B09DH4	REVIEWER: SC	DATE: 11/18/94	PAGE_1_OF_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Phosphate	1	B09DH4	Holding Times Exceeded
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Project: WESTINGHOUSE-HAINFORD

Laboratory: TMA		.!]															
Case	SDG: B																		
Sample Number		B09DJ2																1	
Location		EB-2																1	
Remarks		EB												` '					\neg
Sample Date		11/03/93										1							\neg
Analytes	Method			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	a
Chloride	300.0	0.2						•											П
Fluoride	300.0	0.1	U		Ι	I								,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					\Box
Phosphate	300.0	0.4	A														\Box		\Box
pH (pH units)	9040	6.1	J						Γ								T	1	\Box
Sulfate	300.0	1.0	U															1	\Box
Alkalinity	310.1	2.0					Γ				<u> </u>						Γ	1	\sqcap
TDS	160.1	5.0	Ū	1			Г												П
Sulfide	9030	1.0	Ū														1	1	\Box
Ammonia, as N	350.3	0.05	U																
COD	410.1	30.0	U		1	<u> </u>					<u> </u>			<u> </u>			T		\Box
Elect. Conductivity	9050	6.0	U			i											Г		\Box
(umhos/cm)					Î														П
 				ĺ															\Box
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SDG: B09DJ2	REVIEWER:	SC		DATE: 1/18/9)4	PAGE_	_OF_1_
COMMENTS:							
FIELD SAMPLE	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09DJ2	рН	11/03/93		11/09/93		3	1
B09DJ2	Phosphate	11/03/93		11/30/93		2	R
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SDG: B09DJ2	REVIEWER: SC	DATE: 11/18/94	PAGE_1_OF_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
pН	J	B09DJ2	Holding Times Exceeded
Phosphate	R	B09DJ2	Holding Times Grossly Exceeded
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WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

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Project: WESTING!	OUSE-HA	NFORD		4															
Laboratory: TMA				1						ļ .									
Case	SOG: B																		
Sample Number		B090J2						<u>. </u>		<u> </u>								1	
Location		EB-2														l			
Remarks		EB														1			
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SDG: B09DJ2

B09DJ2

EB-2

Project: WESTINGHOUSE-HANFORD

Laboratory: TMA

Sample Number Location

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EB = Equipment Blank

SDG: B09DJ2	REVIEWER:	SC	!	DATE: 1/18/9)4	PAGE_	_OF_1_
COMMENTS:				,			
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09DJ2	N03N02	11/03/93		12/02/93		28	ı
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SDG: B09DJ2	REVIEWER: SC	DATE: 1/18/94	PAGE_1_OF_1_			
COMMENTS:						
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON			
N03N02	J	B09DJ2	Holding Times Exceeded			
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	SAMPLE LOCATION INFORMATION				
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	RADIOCHEMISTRY
199-F1-2	B09D66	w	10/29/93	v	13-4
199-F5-1	B09D70	w	10/28/93	v	13-4
199-F5-4	B09D78	W	11/06/93	v	13-6
199-F5-6	B09D82 B09DG2 B09DH0	W W W	10/26/93 10/26/93 10/26/93	V V V	13-4 13-5 13-7
199-F5-42	B09D86	w	10/30/93	V	13-4
199-F5-43A	B09D90	w	10/30/93	v	13-4
199-F5-44	B09D94	w	10/30/93	v	13-4
199-F5-45	B09D98	w	11/06/93	v	13-6
199-F5-46	B09DB2	w	11/06/93	v .	13-6
199-F5-47	B09DB6 B09DG6 B09DH4	w w w	10/31/93 10/31/93 10/31/93	V V	13-4 13-5 13-7
199-F5-48	B09DC0	w	10/31/93	v	13-4
199-F6-1	B09DC4	w	10/30/93	v	13-4
199- F 7-1	B09DC8	w	10/27/93	V	13-4
199-F7-2	B09DD2	w	10/30/93	v	13-5
199-F7-3	B09DD6	w	11/06/93	V	13-6
199-F8-2	B09DF0	w	10/31/93	v	13-5
199-F8-3	B09DF4	w	10/29/93	v	13-5
199-F8-4	B09DF8	w	10/29/93	V	13-5
EB-1	B09DH8	w	10/28/93	v	13-5
EB-2	B09DJ2	w	11/03/93	. V	13-6

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7.0 GROSS ALPHA AND GROSS BETA DATA VALIDATION

7.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B09D66

B09D78

B09DH0

B09DH4

7.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

--- All holding-times were acceptable.

7.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the gas proportional counter used for gross alpha and gross beta determination is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument efficiency determination as a function of alpha or beta particle energy, and as a function of the mass of material submitted for counting. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible.

Gross beta results in sample B09DJ2 (an equipment blank) in SDG No. B09D78 had background counts taken more than one week before analysis.

All other calibration results, including efficiency checks and background counts, were acceptable.

7.4 ACCURACY

Accuracy was evaluated by analyzing distilled water samples spiked with known amounts of alpha or beta emitting radionuclides. The sample activity as determined by analysis is compared to the known activity to assess accuracy. Acceptable accuracy of spiked sample data must fall within a range of 70 to 130 percent. If spiked sample results were outside this range, associated sample data were qualified as estimated, rejected or not qualified, depending on the individual sample activity.

All accuracy results were acceptable.

7.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. If both sample and replicate activities are greater than five times the RDL and the RPD is less than 35 percent for soil samples and 20 percent for water samples, the results are acceptable. If either activities are <5xRDL, a control limit of <2xRDL is used for soil samples and <RDL for water samples. If either the original or replicate value is below the RDL, the applicable control limits are <RDL for water samples and <2xRDL for soil samples. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All gross alpha and gross beta results in SDG No. B09DH4 were qualified as estimates and flagged "J" due to duplicate analysis RPD's outside QC limits.

All other precision results were acceptable.

7.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicated the presence of an analyte above both the MDA and the statistical uncertainty associated with that MDA, the following qualifiers were applied: All positive sample results less than five times the blank concentration were qualified as estimated; sample results below the MDA were elevated to the MDA and qualified as undetected; sample results above the MDA and greater than five times the blank concentration were not qualified.

All blank results were acceptable.

7.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitation and detection limits were recalculated for all samples in each data package to verify their accuracy.

All analyte quantitation and reported detection limits were acceptable.

7.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument continuing calibration information and QC data indicates that instrument performance was adequate for these analyses. All gross alpha and gross beta results in SDG No. B09DH4 were qualified as estimates and flagged "J" due to duplicate analysis RPD's outside QC limits. Data qualified as estimates and flagged "J" are valid and usable for limited purposes only. Gross beta results in sample number B09DJ2 (an equipment blank) in SDG No. B09D78 had background counts taken more than one week prior to analysis. All other QC data is valid and usable for all purposes.

8.0 ALPHA SPECTROSCOPY DATA VALIDATION

8.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B09D66

B09D78

BO9DHO

B09DH4

8.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

8.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the alpha spectroscopy system used is capable of producing acceptable and reliable analytical data. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible. The calibration consists of an instrument efficiency determination for each alpha radionuclide region of interest, and a system resolution assessment as measured by the full-width at half maximum for each peak.

Americium-241 results for sample number B09DJ2 (an equipment blank) in SDG No. B09D78 had a continuing calibration efficiency count outside QC limits.

All other calibration results, including efficiency checks and background counts, were acceptable.

8.4 ACCURACY

Accuracy was evaluated by analyzing distilled water samples spiked with known amounts of alpha emitting radionuclides. The sample activity as determined by analysis is compared to the known activity to assess accuracy. The acceptable laboratory control sample recovery range is 70 to 130 percent, while that for a matrix spike is 60 to 140 percent. Spike sample results outside the above ranges resulted in associated sample results being qualified as estimated, rejected, or not qualified, depending on the activity of the individual sample. A chemical

tracer is used to determine the efficiency of the analytical method, with tracer yield limits of 20 to 105 percent. Sample results with chemical yields outside the above stated limits were qualified as estimated or rejected depending on sample activity.

Due to a LCS percent recovery of 52%, all uranium-235 results in SDG No. B09DH4 were qualified as estimates and flagged "J".

Due to the lack of an LCS, all plutonium-238 results in SDG No. B09D78 (except equipment blanks) were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

8.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. If both sample and replicate activities are greater than five times the RDL and the RPD is less than 35 percent for soil samples and 20 percent for water samples, the results are acceptable. If either activities are <5xRDL, a control limit of $\le2xRDL$ is used for soil samples and \leRDL for water samples. If either the original or replicate value is below the RDL, the applicable control limits are \leRDL for water samples and $\le2xRDL$ for soil samples. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All precision results were acceptable.

8.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicated the presence of an analyte above both the MDA and the statistical uncertainty associated with that MDA, the following qualifiers were applied: All positive sample results less than five times the blank concentration were qualified as estimated; sample results below the MDA were elevated to the MDA and qualified as undetected; sample results above the MDA and greater than five times the blank concentration were not qualified.

All blank results were acceptable.

8.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitations and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

Reported MDA values for the following samples were above the RDL:

- Plutonium-238 and plutonium-239 in sample number B09DD6 in SDG No. B09D78.
- Plutonium-239 and americium-241 in sample number B09DH0 in SDG No. B09DH0.
- Plutonium=239 and americium=241 in sample number B09DH4 in SDG No. B09DH4.

All other analyte quantitation and reported detection limits were acceptable.

8.8 OVERALL ASSESSMENT AND SUMMARY

A complete review of all QC and calibration data indicates that overall system performance was adequate. Due to a low LCS percent recovery, all uranium-235 results in SDG No. B09DH4 were qualified as estimates and flagged "J". Due to the lack of a LCS, all plutonium-238 results in SDG No. B09D78 (except equipment blanks) were qualified as estimates and flagged "J". Data qualified as estimated are valid and usable for limited purposes only. Americium-241 results for sample number B09DJ2 (an equipment blank) in SDG No. B09D78 had a continuing calibration efficiency count outside QC limits. All other QC data are valid and usable for all purposes.

9.0 GAMMA SPECTROSCOPY DATA VALIDATION

9.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B09D66

B09D78

B09DH0

B09DH4

9.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

9.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the gamma spectroscopy system used is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument efficiency determination for each gamma radionuclide region of interest, and a system resolution assessment as measured by the full-width at half maximum for each peak. Initial calibration was performed for each counting geometry used during the analysis of Westinghouse-Hanford samples. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible.

All gamma spectroscopy results in SDG Nos. B09DH0 and B09DH4 were qualified as estimates and flagged "J" due to the continuing calibration checksource geometry not matching the sample geometry.

All other calibration results, including efficiency checks and background counts, were acceptable.

9.4 ACCURACY

Accuracy was evaluated by analyzing soil or distilled water samples spiked with known amounts of gamma emitting radionuclides. The sample activity as determined by sample analysis is compared to the known activity to assess accuracy. The acceptable spiked recovery range is 70 to 130 percent. If

spiked sample results were outside this range, the associated sample results were qualified as estimated, rejected or not qualified, depending on the sample activity.

All accuracy results were acceptable.

9.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. If both sample and replicate activities are greater than five times the RDL and the RPD is less than 35 percent for soil samples and 20 percent for water samples, the results are acceptable. If either activities are <5xRDL, a control limit of <2xRDL is used for soil samples and <RDL for water samples. If either the original or replicate value is below the RDL, the applicable control limits are <RDL for water samples and <2xRDL for soil samples. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All precision results were acceptable.

9.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicated the presence of an analyte above both the MDA and the statistical uncertainty associated with that MDA, the following qualifiers were applied: All positive sample results less than five times the blank concentration were qualified as estimated; sample results below the MDA were elevated to the MDA and qualified as undetected; sample results above the MDA and greater than five times the blank concentration were not qualified.

All blank results were acceptable.

9.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitations and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

Reported MDA values for the following samples were above the RDL:

Iron-59 in all samples in SDG No. B09D78.

• Iron-59 in sample numbers B09D66, B09D82, B09D86, B09D90, B09D94, B09DB6, B09DC0 B09DC8, B09DF0, B09DF4 and B09DH8 in SDG No. B09D66.

All other analyte quantitation and reported detection limits were acceptable.

9.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument continuing calibration information and QC data indicates that instrument performance was adequate for these analyses. Gamma spectroscopy results in SDG Nos. B09DH0 and B09DH4 were qualified as estimates and flagged "J" due to the continuing calibration checksource geometry not matching the sample geometry. All other QC data are usable and valid for all purposes.

10.0 STRONTIUM-90 DATA VALIDATION

10.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B09D66

B09D78

B09DH0

B09DH4

10.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

10.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the low background counting system used for strontium-90 determination is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument counting system efficiency determination. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible.

All calibration results, including efficiency checks and background counts, were acceptable.

10.4 ACCURACY

Accuracy was evaluated by analyzing soil or distilled water samples spiked with known amounts of beta emitting radionuclides. The sample activity as determined by analysis is compared to the known activity to assess accuracy. The acceptable laboratory control sample recovery range is 70 to 130 percent, while that for a matrix spike is 60 to 140 percent. Spike sample results outside the above ranges resulted in associated sample results being qualified as estimated, rejected, or not qualified, depending on the activity of the individual sample. A chemical tracer is used to determine the efficiency of the analytical method, with tracer yield limits of 30 to 105 percent. Sample results above the MDA with chemical yields outside the above stated limits were qualified as estimated or rejected.

All accuracy results were acceptable.

10.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. If both sample and replicate activities are greater than five times the RDL and the RPD is less than 35 percent for soil samples and 20 percent for water samples, the results are acceptable. If either activities are <5xRDL, a control limit of <2xRDL is used for soil samples and <RDL for water samples. If either the original or replicate value is below the RDL, the applicable control limits are <RDL for water samples and <2xRDL for soil samples. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All precision results were acceptable.

10.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicated the presence of an analyte above both the MDA and the statistical uncertainty associated with that MDA, the following qualifiers were applied: All positive sample results less than five times the blank concentration were qualified as estimated; sample results below the MDA were elevated to the MDA and qualified as undetected; sample results above the MDA and greater than five times the blank concentration were not qualified.

All blank results were acceptable.

10.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitation and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

All analyte quantitation and reported detection limits were acceptable.

10.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument continuing calibration information and QC data indicates that instrument performance was adequate for these analyses. All data are valid and usable for all purposes.

11.0 TECHNETIUM-99 DATA VALIDATION

11.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B09D66

B09D78

B09DH0

B09DH4

11.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

11.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the low background counting system used for technetium-99 determination is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument counting system efficiency determination. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible.

All calibration results, including efficiency checks and background counts, were acceptable.

11.4 ACCURACY

Accuracy was evaluated by analyzing soil or distilled water samples spiked with known amounts of beta emitting radionuclides. The sample activity as determined by analysis is compared to the known activity to assess accuracy. The acceptable laboratory control sample recovery range is 70 to 130 percent, while that for a matrix spike is 60 to 140 percent. Spike sample results outside the above ranges resulted in associated sample results being qualified as estimated, rejected, or not qualified, depending on the activity of the individual sample. A chemical tracer is used to determine the efficiency of the analytical method, with tracer yield limits of 30 to 105 percent. Sample results with chemical yields outside the above stated limits were qualified as estimated or rejected depending on sample activity.

All accuracy results were acceptable.

11.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. If both sample and replicate activities are greater than five times the RDL and the RPD is less than 35 percent for soil samples and 20 percent for water samples, the results are acceptable. If either activities are <5xRDL, a control limit of \leq 2xRDL is used for soil samples and \leq RDL for water samples. If either the original or replicate value is below the RDL, the applicable control limits are \leq RDL for water samples and \leq 2xRDL for soil samples. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All technetium-99 results in SDG No. B09D78 (except equipment blanks) were qualified as estimates due to a duplicate analysis RPD outside QC limits.

All other precision results were acceptable.

11.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicated the presence of an analyte above both the MDA and the statistical uncertainty associated with that MDA, the following qualifiers were applied: All positive sample results less than five times the blank concentration were qualified as estimated; sample results below the MDA were elevated to the MDA and qualified as undetected; sample results above the MDA and greater than five times the blank concentration were not qualified.

Due to blank contamination, all technetium-99 sample results, except sample number B09DJ2 in SDG No. B09D78, were qualified as estimates and flagged "J".

All other blank results were acceptable.

11.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitation and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

The MDA was above the RDL for sample number B09DD6 in SDG No. B09D78.

All other-analyte-quantitation and reported detection limits were acceptable.

-- 1-1.8 -- OVERALL-ASSESSMENT-AND SUMMARY

A review of instrument continuing calibration information and QC data indicates that instrument performance was adequate for these analyses. All technetiom-99 results in SDG No. B09D78 (except equipment blanks) were qualified as estimates and flagged "J" due to a duplicate analysis RPD outside QC limits. Due to blank contamination, all technetium-99 sample results, except sample number B09DJ2 in SDG No. B09D78, were qualified as estimates and flagged "J". Estimated data are considered usable for limited purposes only. All other QC data are acceptable for all purposes.

12.0 CARBON-14 DATA VALIDATION

12.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B09D66

B09D78

B09DH0

B09DH4

12.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

12.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the low background liquid scintillation counting system used for carbon-14 determination is capable of producing acceptable and reliable analytical data. Each counting system must be factory calibrated at installation and after any maintenance or repair. Calibration consists of an instrument efficiency determination for each applicable radionuclide. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible.

Due to no checksource being run with the data package, all carbon-14 sample results in SDG Nos. B09DH0 and B09DH4 were qualified as estimates and flagged "J".

All other calibration results, including efficiency checks and background counts, were acceptable.

12.4 ACCURACY

Accuracy was evaluated by analyzing soil or distilled water samples spiked with known amounts of beta emitting radionuclides. The sample activity as determined by analysis is compared to the known activity to assess accuracy. The acceptable laboratory control sample recovery range is 70 to 130 percent, while that for a matrix spike is 60 to 140 percent. Spike sample results outside the above ranges resulted in associated sample results being qualified as estimated, rejected, or not qualified,

depending on the activity of the individual sample. A chemical tracer is used to determine the efficiency of the analytical method, with tracer yield limits of 30 to 105 percent. Sample results above the MDA with chemical yields outside the above stated limits were qualified as estimated or rejected.

The following samples were qualified as estimates and flagged "J" due to high radiochemical yields:

- Samples BO9DJ2 (an equipment blank, no qualifier) (128%), BO9D78 (121%), and BO9D98 (116%) in SDG No. BO9D78.
- Sample B09DH0 (113%) in SDG No. B09DH0 and sample B09DH4 (133%) in SDG No. B09DH4.

All other accuracy results were acceptable.

12.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. If both sample and replicate activities are greater than five times the RDL and the RPD is less than 35 percent for soil samples and 20 percent for water samples, the results are acceptable. If either activities are <5xRDL, a control limit of \leq 2xRDL is used for soil samples and \leq RDL for water samples. If either the original or replicate value is below the RDL, the applicable control limits are \leq RDL for water samples and \leq 2xRDL for soil samples. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All precision results were acceptable.

12.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicated the presence of an analyte above both the MDA and the statistical uncertainty associated with that MDA, the following qualifiers were applied: All positive sample results less than five times the blank concentration were qualified as estimated; sample results below the MDA were elevated to the MDA and qualified as undetected; sample results above the MDA and greater than five times the blank concentration were not qualified.

All blank results were acceptable.

12.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitation and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

All analyte quantitation and reported detection limits were acceptable.

12.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument performance and calibration indicates that the overall system performance is adequate. Due to no checksource being run with the data package, all carbon-14 sample results in SDG Nos. B09DH0 and B09DH4 were qualified as estimates and flagged "J". Data were qualified as estimates in SDG Nos. B09D78, B09DH0 and B09DH4 due to high radiochemical yields. Data qualified as estimated is valid and usable for limited purposes only. All but two of the seventeen sample results in SDG No. B09D66 were negative. No data was qualified based on this observation, however it may indicate a negative bias in the LCS used for these analysis. All other QC data are acceptable for all purposes.

13.0 TRITIUM DATA VALIDATION

13.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B09D66

B09D78

BO9DHO

B09DH4

13.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

- --- All holding times were acceptable.

13.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the low background liquid scintillation counting system used for tritium determination is capable of producing acceptable and reliable analytical data. Each counting system must be factory calibrated at installation and after any maintenance or repair. Calibration consists of an instrument efficiency determination for each applicable radionuclide. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible.

All calibration results, including efficiency checks and background counts, were acceptable.

13.4 ACCURACY

Accuracy was evaluated by analyzing soil or distilled water samples spiked with known amounts of beta emitting radionuclides. The sample activity as determined by analysis is compared to the known activity to assess accuracy. The acceptable laboratory control sample recovery range is 70 to 130 percent, while that for a matrix spike is 60 to 140 percent. Spike sample results outside the above ranges resulted in associated sample results being qualified as estimated, rejected, or remaining unchanged, depending on the activity of the individual sample.

Due to the lack of a matrix spike analysis, all tritium results in SDG Nos. B09D78 and B09D66 (except equipment blanks) were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

13.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. If both sample and replicate activities are greater than five times the RDL and the RPD is less than 35 percent for soil samples and 20 percent for water samples, the results are acceptable. If either activities are <5xRDL, a control limit of \leq 2xRDL is used for soil samples and \leq RDL for water samples. If either the original or replicate value is below the RDL, the applicable control limits are \leq RDL for water samples and \leq 2xRDL for soil samples. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All precision results were acceptable.

13.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicated the presence of an analyte above both the MDA and the statistical uncertainty associated with that MDA, the following qualifiers were applied: All positive sample results less than five times the blank concentration were qualified as estimated; sample results below the MDA were elevated to the MDA and qualified as undetected; sample results above the MDA and greater than five times the blank concentration were not qualified.

All blank results were acceptable.

13.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitation and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

All analyte quantitation and reported detection limits and sample results were acceptable.

13.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument performance and calibration indicates that the overall system performance is adequate. Due to the lack of a matrix spike analysis, all tritium results in SDG Nos. B09D78 and B09D66 (except equipment blanks) were qualified as estimates and flagged "J". Estimated data are considered usable for limited purposes only. All other QC results were acceptable and usable for all purposes.

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Laboratory: TMA															•					
Case SDG	: B09D6	6	1																,	
Sample Number	B09D66		B09D70		B09D82	B09D82			B09D90		B09D94		B09DB6		B09DC0		B09DC4		B09DC8	
Location	199-F1-	2	199-F5-	199-F5-1		199-F5-6		199-F5-42		199-F5-43A		199-F5-44		47	199-F5-48		199-F6-	199-F6-1		1
Remarks																	_1			
Sample Date	10/29/93		10/28/93		10/26/93		10/30/93		10/30/93		10/30/93		10/31/93		10/31/93		10/30/93		10/27/93	
Radiochemistry Analytes	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q		Q	Result	Q		Q		Q		Q
Gross Alpha	2.6	J	0.049	U	5.2		0.11	υ	1.1	J	-0.022	Ū	4.1		6.3		0.95	J	3.2	Ш
Gross Beta	3.7	j	59		18		10		8.8		12		9.0		7.8		2.8	J	7.8	
Tritium	180	UJ	300	J	1800	7	95	ÜJ	100	IJ	250	J	9700	-	9900	J	100	IJ		j
Carbon-14	-43	U	-8.1	U	-46	U	-23	U	-33	U	-31	U	-7.5	כ	-26	Ü	-44	٦		U
Strontium-90	0.32	U	27		5.2		5.0		2.1		6.1		0.40	ט	0.15	U	0.29	U		U
Technetium-99	0.85	UJ	0.97	UJ	1.7	UJ	1.2	UJ	1.7	IJ	0.19	IJ		3	0.62	W	1.0	IJ		UJ
Uranium-233/234	1.9		0.74		1.1		0.19	J	0.42		0.37		5.1		3.9		0.45		0.58	
Uranium-235	0.11	J	0.025	U	0.085	U	-0.005	U	0.071	U	0.036	U	0.10	U	0.16	j	0.016	U	0.022	U
Uranium-238	1.6		0.64		1.0		0.22		0.20		0.52		4.0		3.2	L	0.45		0.69	
Plutonium-239/240	0.025	Ū	0	U	0.024	U	-0.007	U	0.040	J	0	U	-0.003	U	-0.006	U	0.006	U	-0.005	U
Americium-241	0	U	-0.007	U	0.009	U	0.011	U	-0.008	U	0.003	U	0.006	ح	0.067		0	Ú	0	U
Sodium-22	N/D	U	N/D	U	N/D	Ü	N/D	U	N/D	U	N/D	Ü	N/D	U	N/D	U	N/D	U	1-7-	U
Potassium-40	N/D	Ū	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U
Manganese-54	N/D	U	N/D	v	N/D	U	N/D	U	N/D	U	N/D	Ü		U	N/D	U	N/D	U		U
Iron-59	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	Ü	N/D	U		U
Cobalt-58	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		u
Cobalt-60	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		U
Niobium-94	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	1	U
Ruthenium-103	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	u		U
Ruthenium-106	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	1	U
Tin-113	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		U
Cesium-134	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	u		U
Cesium-137	N/D	U	N/D	Ü	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		U
Cerium-144	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	1	U
Europium-152	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		U
Europium-154	N/D	Ü	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		U
Europium-155	N/D	Ü	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		U
Radium-226	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	Ü		U
Radium-228	N/D	U	N/D	U	N/D	U	N/D	Ü	N/D	U	N/D	Ü	N/D	U	N/D	U	N/D	U	N/D	U
Thorium-228	N/D	U	N/D	U	N/D	U	N/D	U	N/D	Ü	N/D	Ü	N/D	U	N/D	U	N/D	U	N/D	U
Thorium-232	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U

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	IANFOR	<u>) </u>	1			1					į									
Laboratory: TMA			1								1									
	: B09D6		<u> </u>						,				,		 					
Sample Number	B09DD2		B09DF0		B09DF4		B09DF8		B09DG2		B09DG6		B09DH8							
Location	199-F7-	.2	199-F8-	2	199-F8-3		199-F8-4		1 1		199-F5-47		EB-1							
Remarks			L	·		<u>:</u>			DUP		DUP		EB							
Sample Date	10/30/93		10/31/93		10/29/93		10/29/93		10/26/93		10/31/93		10/28/93							
Radiochiemistry Analytes		Q	Result	Q	Result	Q		Q		Q		Q		Q	Result	Q	Result	Q	Result	Q
Gross Alpha	2.5	J	11		7.1		7.3		3.4		6.5		*	U				<u> </u>		
Gross Beta	7.6	L_	14	<u> </u>	17		6.6		22		9.3			J			<u> </u>			
Tritium	470	J	2000	J	110000	J		J	1600	J	9700	J		U	1	Ī		<u> </u>	<u> </u>	
Carbon-14	-58	U	1	[U	410	:	-42	<u> </u>	-40	U	-14	U		U		}				
Strontium-90	0.20	U		U		U	0.12	U	9.3			J	0.17	J				l		
Technetium-99	1.6	J	0.75	UJ	2.0	J	1.3	J		J	<u> </u>	IJ	1.3	J						
Uranium-233/234	2.7		9.3		3.9	1	4.8		3.0		2.9		0.036	U						
Uranium-235	0.15	J	0.31		0.24		0.24		0.14	U	0.12	Ū	0.010	U			T	Τ		T
Uranium-238	2.2		8.2		3.2	:	3.9		2.3		2.3		0.084	J						T
Plutonium-239/240	0.013	U	0	U	0.036	U	-0.006	U	0.016	U	0.002	U	0.017	U				1		
Americium-241	0.014	U	-0.004	U	0.015	U	0.007	U	0.009	U	0	Ü	-0.009	υ						
Sodium-22	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U				T		
Potassium-40	N/D	U	N/D	U	N/D	Ų	N/D	U	N/D	U	N/D	U	N/D	J						
Manganese-54	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		ľ				
tron-59	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	Ū				T		
Cobalt-58	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	Ū	N/D	U						T
Cobalt60	N/D	U	N/D	U	N/D	U	N/D	Ü	N/D	U	N/D	U	N/D	U						T
Niobium-94	N/D	Ū	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U						T
Ruthenium-103	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	Ų	N/D	U						1
Ruthenium-106	N/D	V	N/D	U	N/D	U	N/D	U	N/D	Ü	N/D	U	N/D	U						
Tin-113	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U						
Cesium-134	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		Π				
Cesium-137	N/D	Ū	N/D	U	N/D	U	N/D	U	N/D	U	N/D	Ū	N/D	Ü						\top
Cerium-144	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U						
Europium-152	N/D	U	N/D	U	N/D	Ü	N/D	Ü	N/D	U	N/D	Ū	N/D	U				1		
Europium-154	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	Ū	N/D	U		1	1	1	<u> </u>	1
Europium-155	N/D	U	N/D	U	N/D	U	N/D	Ū	N/D	U	N/D	Ū	N/D	U						
Radium-226	N/D	Ū	N/D	Ū	N/D	U	23	1	N/D	U	N/D	U	N/D	U		1				1
Radium-228	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		ľ				\top
Thorium -228	N/D	U	4	Ū		U	N/D		.	U		U	1	U			1			\top
Thorium -232	N/D	Ū	 	Ū		Ū	N/D		N/D	Ū	 	Ū		Ū					†	十一
11101101111 EVE	1	<u> </u>	1	1 <u>~</u>	<u>:::-</u> _	1	1	1	1		1	_			L	<u> </u>		1	L	

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Case SDG	: B09D7	В																		
Sample Number	B09D78		B09D98		B09DB2		B09DD6		B09DJ2											
Location	199-F5-	4	199-F5-45		199-F5-46		199-F7-3		EB-2									·		
Remarks	emarks									EB							I			
Sample Date 11/06/93									11/03/93											
Radiochemistry Analytes	Result	Q	Result	Q		Q	<u> </u>	Q		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Gross Alpha	4.3		0.88	C	3.2		1	บ		U	<u> </u>					<u></u>		<u> </u>		
Gross Beta	8.7		5.6		25		7.0			U	<u> </u>	<u> </u>						<u> </u>	<u> </u>	
Tritium	9800	J	1100	J	4700	j	1100	J		U	<u> </u>			<u> </u>			<u>]</u>		<u></u>	
Carbon-14	86	J	61	J	16	U		U	83	J							<u> </u>			
Strontium-90	0.43	U	0.17	U	9.1		0.096	U	0.062	U		<u> </u>	<u> </u>				<u> </u>	<u> </u>		
Technetium-99	13		8.3		9.9		38		19			<u> </u>								
Uranium-233/234	4.1		1.3		2.8		2.2			U										
Uranium-235	0.18	J		J	0.17	J	0.096	j	0.008	U							<u></u>			
Uranium-238	3.5		1.2		2.6		1.7			J								1		
Plutonium-238	0.003	IJ	0	UJ	0	IJ	-0.021	UJ		U										
Plutonium-239/240	0	Ū	0.003	U	-0.005	U	0.005	U]							
Americium-241	-0.004	U	0.010	U	0.021	J	-0.005	U		U		<u> </u>					<u> </u>	<u> </u>		
Sodium-22	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		L					1			
Potassium-40	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U							<u> </u>	<u> </u>		
Manganese-54	N/D	U	N/D	U	N/D	U	N/D	Ü	N/D	U		<u> </u>			<u></u>			1	<u> </u>	
Iron-59	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		上	1							
Cobalt-58	N/D	IJ	N/D	U	N/D	U	N/D	U	N/D	U					1		<u> </u>		ļ	
Cobalt-60	N/D	Ū	N/D	U	N/D	U	N/D	U	N/D	U				!		<u> </u>				
Niobium-94	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U			<u> </u>	<u> </u>			<u> </u>	<u> </u>		
Ruthenium-103	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U		<u> </u>	ļ	<u> </u>		L	1	<u> </u>	<u> </u>	
Ruthenium-106	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	<u> </u>	<u> </u>	<u> </u>			ļ		1	ļ	
Tin-113	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	<u> </u>	Ш.				ļ	1	<u> </u>	ļ	
Cesium-134	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U			<u> </u>		ļ			↓		
Cesium-137	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U			<u> </u>	┖		┷		1_		
Cerium-144	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	<u> </u>	<u> </u>				1			ļ <u></u>	
Europium-152	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U									<u> </u>	
Europium-154	N/D	Ü	N/D	U	N/D	U	N/D	U	N/D	Ü	<u> </u>	1_	<u> </u>			┸				\perp
Europium-155	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U			<u></u>						1	
Radium-226	N/D	U	N/D	U	N/D	U	N/D	U	N/D	υ		<u> </u>						\perp		
Thorium-228	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U					<u> </u>					
Thorium-228	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U										
Thorium-234	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U							<u> </u>			\perp

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Laboratory: TELEDYNE	····																			
	: B09DH				_														_	
Sample Number	B09DH0	_																		
Location	199-F5-	6			L															
Remarks	SPLIT														Ĺ <u></u>					
Sample Date	10/26/93				L															
Radiochemistry Analytes		Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Gross Alpha	3.6				<u> </u>					<u> </u>					[L				
Gross Beta	28			<u> </u>	<u> </u>			$oxed{oxed}$		L_	14				<u>l. </u>					
Strontium-90	9.3									L										
Technetium-99	<2	U			<u> </u>				L					Ĺ			}			
Carbon-14	<10	UJ			<u> </u>			1					<u></u>							
Beryllium-7	<100	UJ			<u> </u>															
Potassium-40	<200	IJ				l									[
Manganese-54	<8	IJ		<u> </u>			<u> </u>	1	l	L										
Cobalt-58	<10	IJ			L			T							Γ					
Iron-59	<30	UJ						Τ							· ·					П
Cobalt-60	<7	IJ													ĺ					П
Zinc-65	<20	IJ														Г				\Box
Zirconium-95	<10	IJ		Ī _										1						\Box
Ruthenium-103	<10	UJ																		
Ruthenium-106	<80	IJ					1													\Box
lodine-131	<300	UJ						T												П
Cesium-134	<8	UJ						T					'			Γ				
Cesium-137	<8	IJ													<u> </u>					П
Barium-140	<70	UJ			Ī			T					i							
Cerium-141	<20	UJ					1	1]					1						П
Cerium-144	<50	υJ						1								Γ				
Europium-152	<20	UJ						1												П
Europium-154	<20	UJ						\top												\Box
Europium-155	<30	IJ									Î				<u> </u>			\Box		П
Radium-226	<100	IJ																<u> </u>		П
Thorium-228	<10	IJ						T		_	Î			Π						
Thorlum-234	<200	IJ									1									
Tritium	1600		h			_		1	l											
Uranium-238	2.0				1					_	1					П		•		\square
Americium-241	<.08	U		l	†					Γ						1				\sqcap
Uranium-235	0.086				<u> </u>			1					-				1			H
Plutonium-239		U			1			T		_						\vdash	·	1		$\vdash \vdash$
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Laboratory: TELEDYNE							,													
	: B09DH]				1													
Sample Number	B09DH4																			
Location	199-F5-	47			Ĺ		l													
Remarks	SPLIT																			
Sample Date	10/31/93								l											
Radiochemistry Analytes			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Gross Alpha	7.5		ļ	<u> </u>		_		<u> </u>	<u> </u>			<u> </u>		<u> </u>						
Gross Beta	14				<u> </u>	L	<u> </u>			<u> </u>										\prod
Technetium-99		U		<u>L</u>	<u> </u>	L	<u> </u>	<u> </u>			<u> </u>	<u> </u>								
Carbon-14		IJ		<u>L</u>																
Strontium-90	<0.9	U		L																
Beryllium-7	<80	IJ	·																	
Potassium-40	<200	3														П				
Manganese-54	<7	IJ		T					I							Γ				
Cobalt-58	<9	IJ			_								•							
Iron-59	<20	IJ																		\top
Cobalt-60	<7	UJ					-	Τ_	Ĭ			П		Г						\sqcap
Zinc-65	<20	W				1									Ī —					\Box
Zirconium-95	<10	3							I											
Ruthenium-103		3																		
Ruthenium-106	<70	IJ	[Ì												
lodine-131		IJ												<u> </u>						
Cesium-134		3			<u> </u>				<u> </u>	L		<u> </u>		<u> </u>						
Cesium-137	<8	3							ļ	<u> </u>					· · · · · · · · · · · · · · · · · · ·					
Barium-140	<40	Š				<u> </u>			L	<u>.</u>				_						\square
Cerium-141	<20	3						<u> </u>	<u> </u>							L		<u> </u>		$oxed{oxed}$
Cerium-144		IJ		<u>L</u> .		L.		ļ	<u> </u>	<u> </u>		<u> </u>	ļ		<u> </u>	<u>L</u>	<u> </u>			
Europium-152		3		L		_						<u> </u>				L	l			
Europium-154	<30	3		<u> </u>			ļ	<u> </u>	<u> </u>	<u> </u>			<u> </u>	<u> </u>						
Europium-155	<20	3	<u> </u>	<u> </u>				<u> </u>	<u> </u>	<u> </u>		<u> </u>		L		<u>L</u>				
Radium-226	<100	UJ	<u></u>	<u>L</u> _		<u> </u>		<u> </u>	l			<u> </u>		L	<u> </u>		<u> </u>	<u> </u>		
Thorium-228	<10	IJ	<u> </u>	<u></u>	<u> </u>	L		<u>L. </u>	<u> </u>			<u> </u>		L	<u> </u>	<u> </u>		<u> </u>		
Thorium-234		IJ		<u> </u>	<u> </u>	L		<u> </u>	<u> </u>	<u> </u>						L		<u> </u>		
Tritium	11000								l	l										
Uranium-238	3.1																			
Americium-241	<0.07	ح							ļ <u> </u>											
Uranium-235	<0.08	J											L							
Plutonium-239	<0.09	U							I											

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